TECHNOLOGY REVIEW

December 1949

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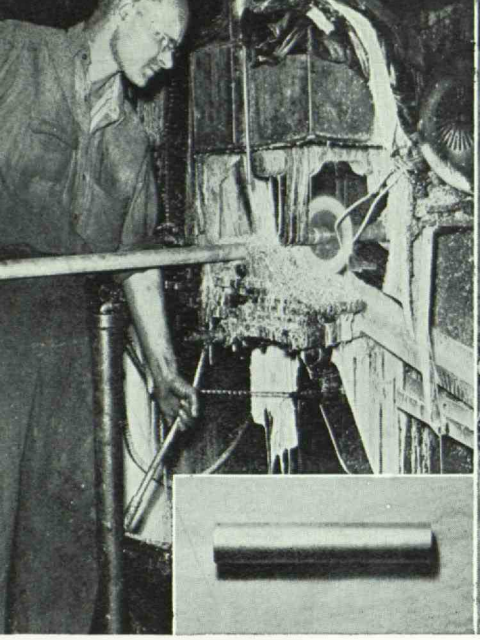

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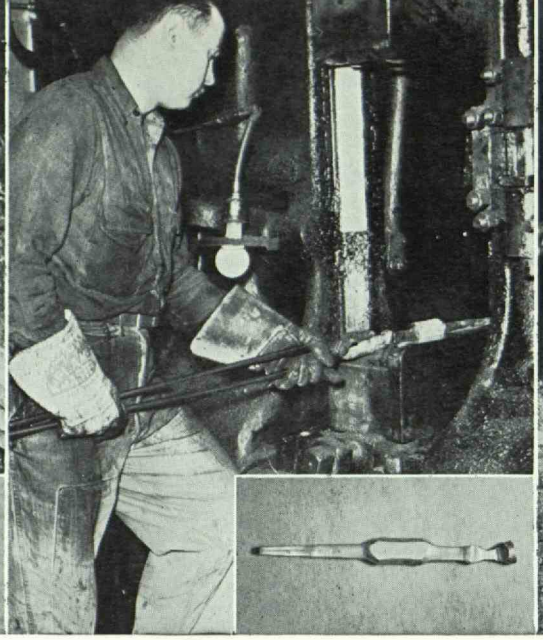

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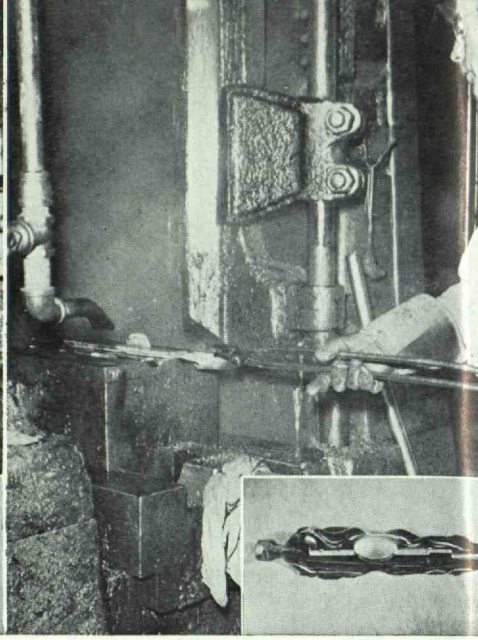
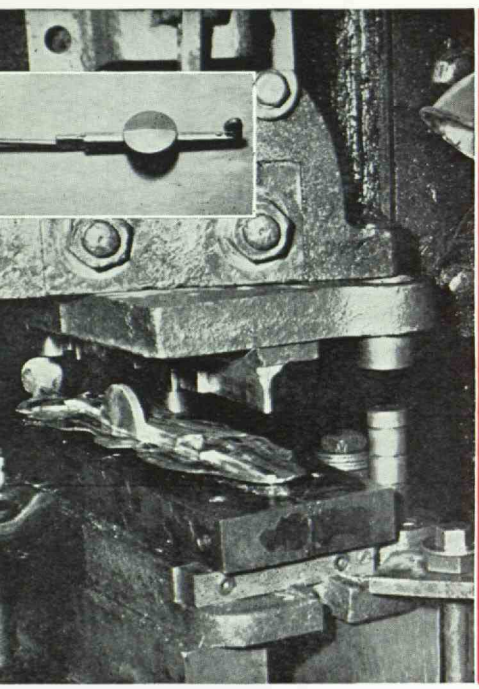


Shaping to the Die



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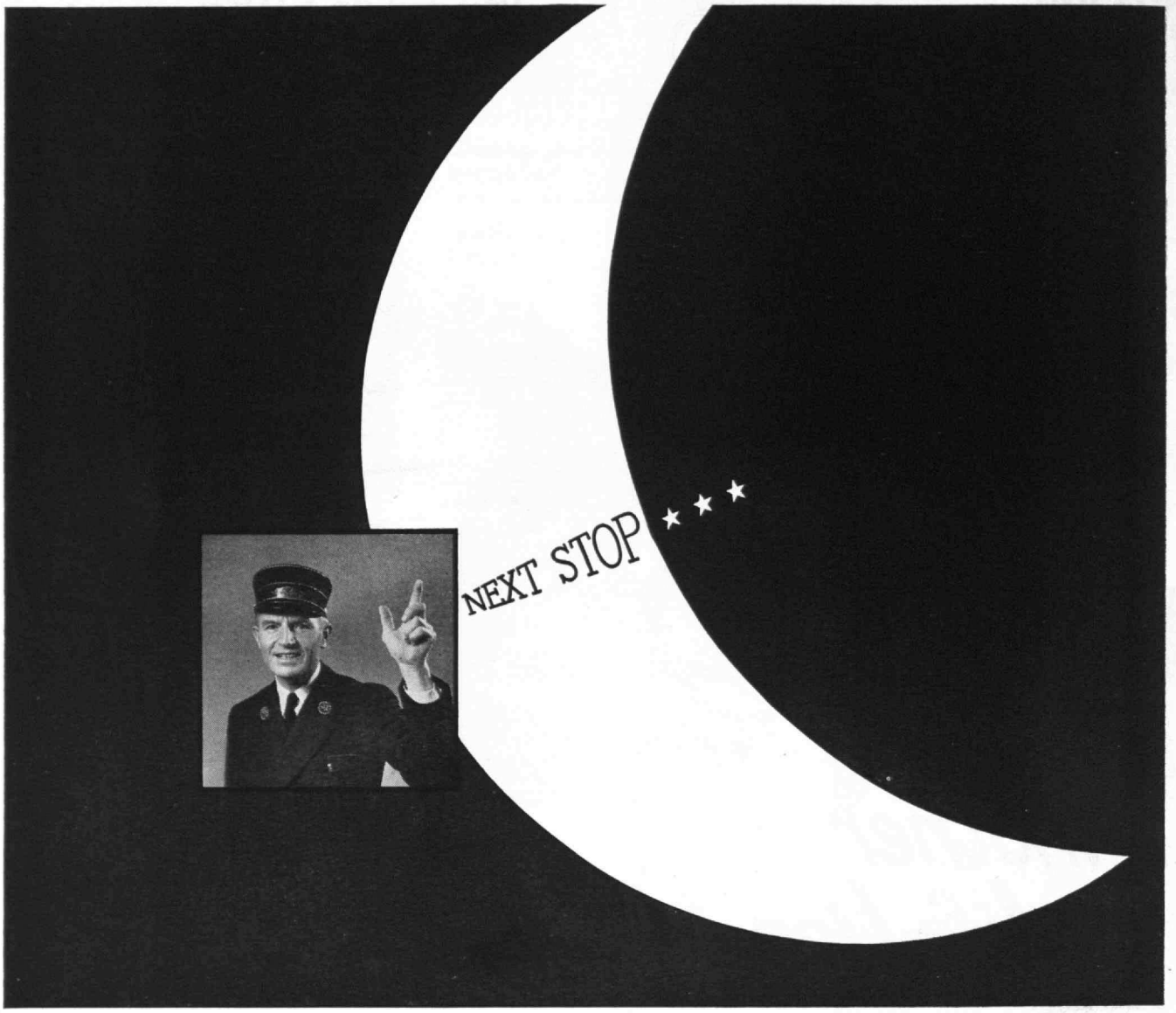
THE TECHNOLOGY REVIEW, December, 1949. Vol. LII, No. 2. Published monthly from November to July inclusive at 8 Harmony Place, Brattleboro, Vt. Publication date: twenty-seventh of the month preceding date of issue. Annual subscription $3.50; Canadian and Foreign subscription $4.00. Entered as second-class matter at the Post Office at Brattleboro, Vt., under the Act of March 3, 1879. Application pending transfer to the Bristol, Conn., post office as second-class matter.



For centuries man has dreamed of the conquest of Space. In the works of Jules Verne and H. G. Wells we have had a brief, imaginative look at the excitement of interplanetary travel.

Today space travel is no longer a fantastic dream. Science and engineering have gone far beyond the technical fumblings of early writers, and it is not unlikely that in the next fifty years someone will arrive at the moon. Radio waves have already been reflected from this whistle stop in space, and in your lifetime some sort of missle will no doubt be sent there.

Much work remains to be done — nothing comparable to another Oak Ridge, however — but intelligent people are working seriously on problems of space ships and means for travel in atmospheres like the moon.

National Research has, for some time, been concerned with problems relating to space travel — problems not too far removed from many encountered in the high vacuum field. To name a few: altimeters for use above 200,000 feet, speedometers for use beyond the sonic range, gas-free metals for rockets, analysis of components of the upper atmosphere, and simulation of upper atmosphere conditions in the laboratory.

Our research organization is always interested in the development of new industrial processes or ideas, particularly those where real imagination or, in many cases, "the courage of ignorance" is required. We have accumulated a great background of experience in tackling research jobs for ourselves and other organizations, and we always welcome an opportunity to become involved with a new project that at first appears impossible to solve.

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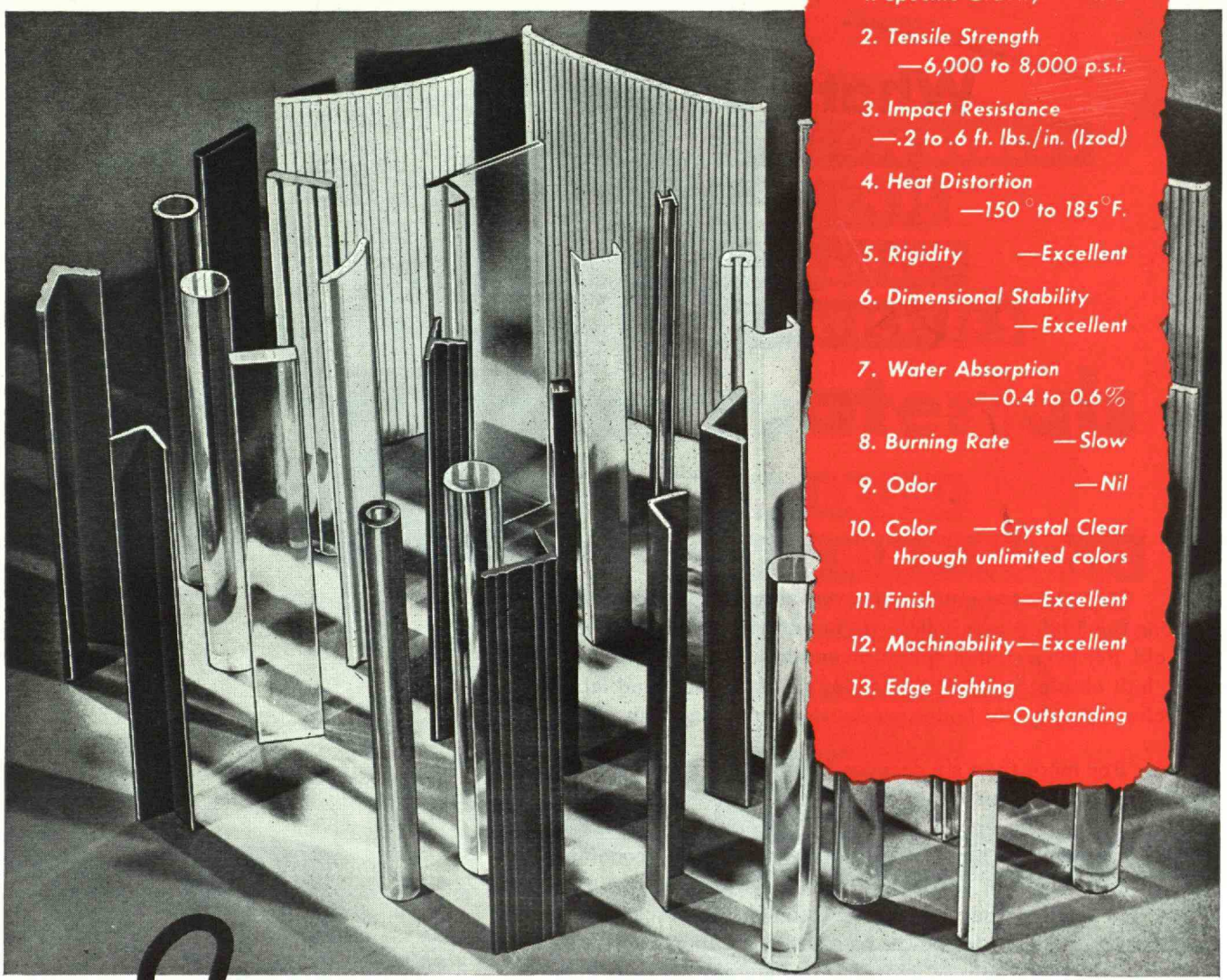

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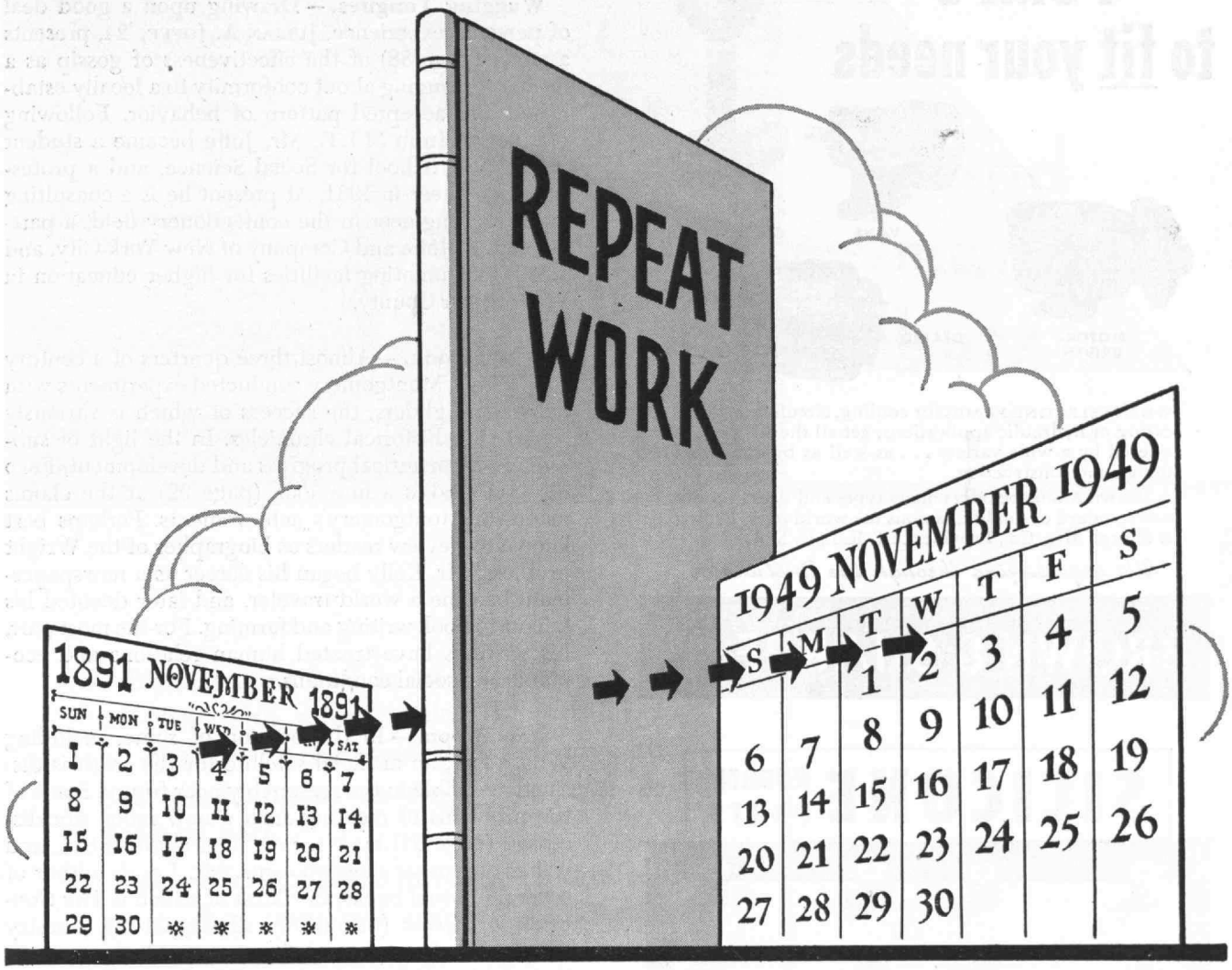

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THE TABULAR VIEW

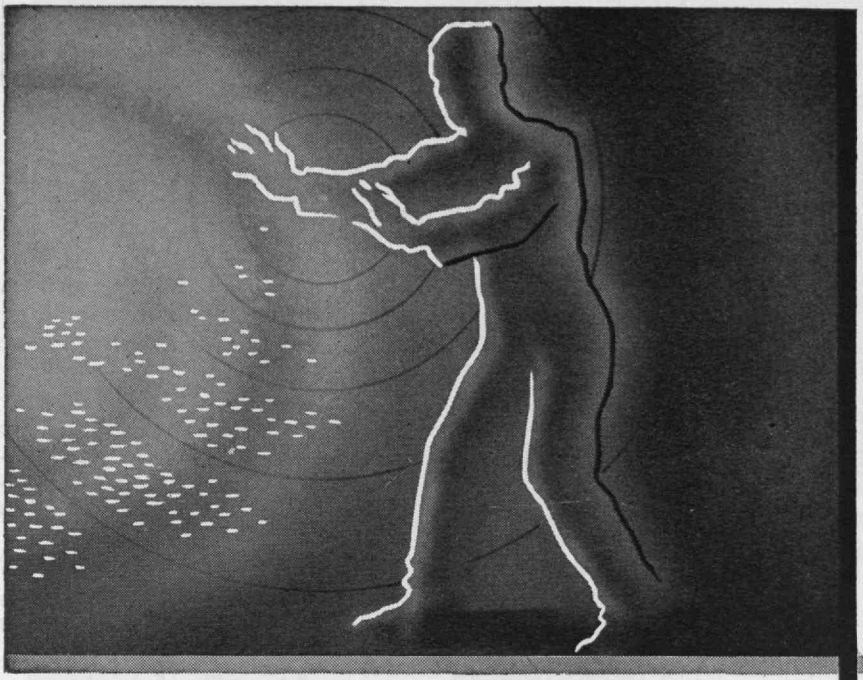
Wagging Tongues. – Drawing upon a good deal of personal experience, JULIAN A. JOFFE, '24, presents a study (page 88) of the effectiveness of gossip as a means of bringing about conformity to a locally established and accepted pattern of behavior. Following graduation from M.I.T., Mr. Joffe became a student in the New School for Social Science, and a professional engineer in 1931. At present he is a consulting industrial engineer in the confectionery field, a partner of J. A. Joffe and Company of New York City, and active in promoting facilities for higher education in Westchester County.

A New Look. – Almost three quarters of a century ago, John J. Montgomery conducted experiments with homemade gliders, the success of which is variously reported in historical chronicles. In the light of subsequent aeronautical progress and development, FRED C. KELLY takes a new look (page 92) at the claims made for Montgomery's achievements. Perhaps best known to Review readers as biographer of the Wright brothers, Mr. Kelly began his career as a newspaperman, became a world traveler, and later devoted his talents to book writing and farming. For the most part, his writings have treated human relations and economic and social conditions.

New Moon. – In the opinion of some, including WILLY LEY, an artificial satellite for the earth is distinctly possible in the reasonably near future. Some of the problems of creating such a new moon are discussed (page 93) by Mr. Ley, long a student of, and writer on, rocket developments. Mr. Ley is author of several unusual books, the latest of which is *The Conquest of Space* (beautifully illustrated by Chesley Bonestell) whose general theme is much the same as that of his article in this issue. Mr. Ley is a frequent contributor to The Review which he serves as editorial associate.

Ten-Foot Eye. – Another of The Review's editorial associates, DAVID O. WOODBURY, '21, tells the interesting story (page 96) of progress under way to build a 120-inch telescope for the University of California, using a 10-foot Pyrex disk which served temporary usefulness in the 200-inch reflector at Mount Palomar. Trained in electrical engineering, Mr. Woodbury for many years has been a free-lance writer on scientific and engineering topics for national magazines. He is author of several volumes, including *Builders for Battle* and *The Glass Giant of Palomar.*

Keep 'Em Flying. – A few of the methods which modern air lines employ to minimize grounding time for overhaul and repairs on airplanes are discussed (page 85) by C. E. PATCH, '02, Treasurer and Industrial Engineer for the Morton C. Tuttle Company of Boston. Since his graduation from the Institute, he has had extensive experience in industrial management in plants all over the world.



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MAIL RETURNS

Entry for the *New Yorker*

FROM C. E. PATCH, '02:

I have been reading the November, 1949, issue of The Review and a paragraph on page 29 has me buffaloed. What is the correct reading, please?
Boston 16, Mass.

[*The garbled version of Dean Bunker's article, "Graduate Study at M.I.T.," as given in the paragraph at the middle of the first column, page 29, should have read:*

The academic excellence of the work of foreign students currently registered is shown by the fact that fellowship and scholarship aid for which all graduate students compete on an equal basis has been won by as large a proportion of foreign students as of our own citizens. This is a healthy situation.

We hasten to add, quite unnecessarily we hope, that although making a suitable entry for the New Yorker, *last month's printed version hardly represents a healthy situation. — Ed.*]

Welcome — of Course

FROM CHARLES G. GLUECK, '34:

Would you be kind enough to tell me whether The Review is interested in having articles contributed by Alumni, and, if so, what procedure should be followed?
Philadelphia 26, Pa.

[*Mr. Glueck's letter provides an opportunity to remind all Review readers that manuscripts on any topic likely to be of interest to Technology Alumni (or others whose training has been in one phase or another of science, engineering, and architecture) are most welcome. Suitable manuscripts are acceptable from M.I.T. graduates or others. Articles should preferably deal with some phase of science, engineering, or architecture, or with the social and economic aspects of technology. Manuscripts should be typed double space and submitted to the editor.*

It may be well to add that The Review is interested in striking photographs as well, and welcomes 8 by 10-inch glossy prints from its readers. — Ed.]

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DO YOU REMEMBER when winter meant storing the family car till spring? Not so many years ago, a car owner's fear of an ice-shattered motor was a dread reality . . . if he *didn't* drain his radiator and store his car once cold weather hit!

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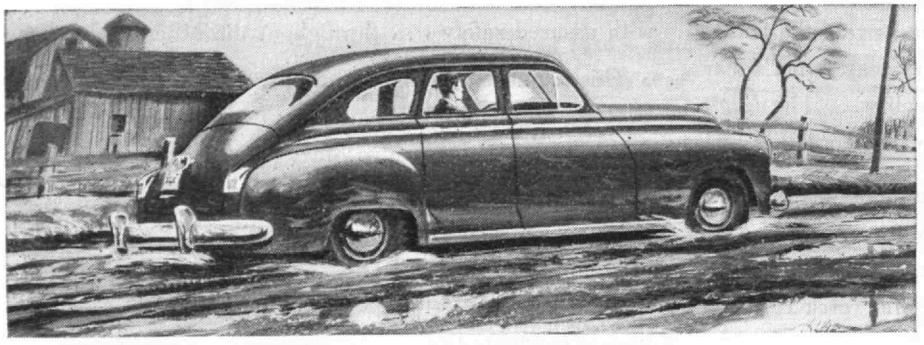

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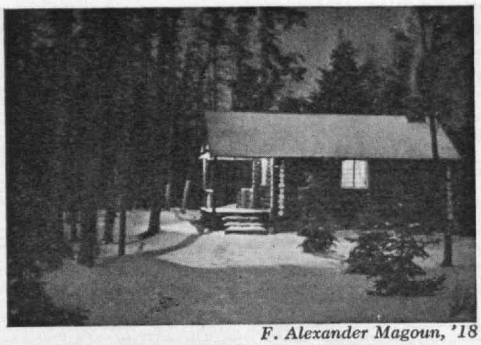

F. Alexander Magoun, '18
Photograph by Moonlight

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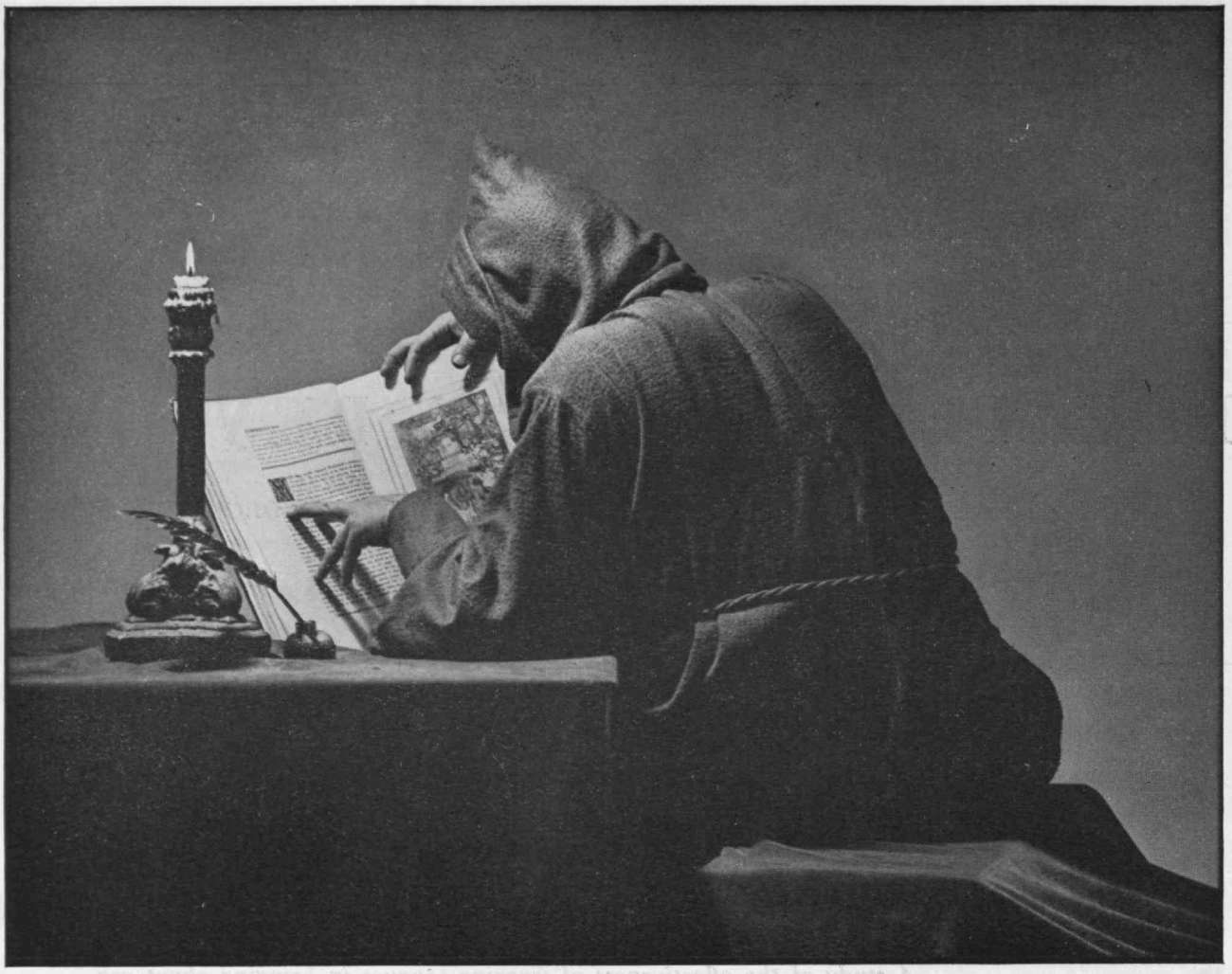


Ex Libris

By S. M. Hall

The spirit of the preservation of learning, as expressed by medieval monks, is captured in this photograph which Mr. Hall included in a one-man show exhibited at the Institute.

THE
TECHNOLOGY
REVIEW

Vol. 52, No. 2 December, 1949

The Trend of Affairs

The Nation's Appreciation

EARLY in November, newspapers throughout the country printed the news of the resignation of Karl T. Compton as chairman of the Research and Development Board of the Department of Defense, and President Truman's acceptance "with utmost regret." For more than a year, Dr. Compton had filled this important post in Washington with his usual distinction, and at considerable sacrifice to his health, and now looks forward to a well-earned rest which is long overdue. Indeed, it is no secret that, a year ago when he was named chairman of the Corporation and was succeeded by James R. Killian, Jr., '26, as President of M.I.T., Dr. Compton had hoped to relinquish some of his burdens and devote a greater portion of his time to the Institute than had been possible since the beginning of World War II. Instead of finding the freedom to carry out such a program, he was once again called to serve the nation in a strenuous and difficult post no qualified patriot could refuse.

In his letter of resignation to President Truman, dated November 2, Dr. Compton made a number of observations regarding his year's work which should be heartening to the citizens of the United States. In part, his letter stated:

Based on the sound foundation established under Dr. Bush, the Board has made some important new contributions, during the past year, to the administration and planning of our national defense program. For the first time it has made available to the Joint Chiefs of Staff a complete report on the status of every research and development item which may be important in future military strategy, with estimates of performance characteristics and dates of availability. . . .

For the first time, it has been possible to recommend to the Secretary of Defense, in connection with the plans for Fiscal 1951, a budget for research and development which is not based, as in the preceding years since the war, on the accidental factor of temporary shortage of research personnel, but on carefully considered estimates of the military importance and technical feasibility of specific projects, all within realistic financial limits. This point I consider of great significance, and I hope that henceforth this portion of our military budget can be determined on the basis of military value in the light of national policy, rather than by the more arbitrary standards which of necessity had to be applied previously.

The work under Dr. Compton's direction for the past year was recognized in President Truman's reply, which stated in part:

For many years your grateful countrymen will remember your extraordinary contributions to the national security through your service as Chairman of the Research and Development Board of the Department of Defense. Not less remarkable than the things which you have accomplished personally are the things which you have helped others to accomplish and the outstanding over-all results which have been achieved under your leadership. For all this you have earned a debt of gratitude difficult to estimate and impossible to repay.

My deep concern for your health leaves me no alternative but to bow to medical advice and with utmost regret to accept, effective upon the qualification of your successor, the resignation as Chairman of the Research and Development Board which you tender in your letter of this day. . . .

And now, what of the future? For the moment, at least, Dr. Compton is planning a long-delayed vacation which has been justly earned. We wish him all the rest – and privacy – to which he is obviously entitled. Shortly after the new year, he will return to resume active participation in M.I.T. affairs to which he has already given two decades of devotion.

It is fitting, we think, to take this opportunity to recognize the many contributions which Dr. Compton has made for the citizenry of this country, not alone in his war service, but equally well, in the training of those students who have passed through the Institute during his presidency. Naturally, The Review

might be expected to have a prejudiced view on such a topic. We turn, therefore, to the Boston *Herald* for November 8, to quote a portion of an editorial which our neighbor publication ran under the heading, "Thanks to Compton." Says the Boston *Herald:*

For eighteen years, including the war years, Dr. Compton was president of the Massachusetts Institute of Technology, a job big enough to absorb the best that any man can give. But during World War II, he made M.I.T. one of the major scientific research resources of the national war machine. . . .

As if his war service had not been enough, he gladly consented to head the new peacetime scientific organization of the Defense Department, although we suspect the job was represented as being much less of a strain than it turned out to be. Not including atomic appropriations, this organization is spending something like $550,000,000 a year for research, under his direction until Nov. 3. It had 13,000 projects on its research list, not all of them active.

At the time of M.I.T.'s Mid-century Convocation last summer, Dr. Compton told a friend he had just completed a trip bringing to 500,000 miles the distance he had covered between Boston and Washington on official business. . . .

Here is selfless, and perhaps needless devotion to one's country. No gold braid, no fancy uniforms, but just long, hard plugging, mostly behind the scenes in the interest of national security. We think the country should take notice.

We wish for Dr. Compton a good rest, a hasty recovery, and the knowledge that his sacrifices were appreciated by his fellow countrymen.

Although the Institute's Faculty and staff are proud of Dr. Compton's latest patriotic service, they are also anxious to resume the warm personal association with him which the war interrupted. All look forward to his early return to M.I.T.

The Case of the 12th Harmonic

As engineers have progressed toward more efficient and less costly machinery, speeds and loads have increased. So have vibration and its symptom, noise. When stresses due to working loads are already close to safe values, there is little reserve left for added stresses caused by the superposition of unexpected vibration, and failure has often resulted. As for noise, it can be, in itself, a nuisance of the first order, even with machinery that is operating quite smoothly. When a bent shaft, an out-of-balance rotor, an inaccurately cut gear, or some other generator of vibration is present, noise can rise to unendurable levels, even as high as 120 decibels.* Such noise production is generally an indication that prompt remedial action is needed immediately. Vibrations plague many fields of engineering, particularly where high speeds and dynamic loads are present, as is typified in the engine rooms of ships. Aside from its reflection on the mechanical integrity of the power plant or the comfort of the passengers, noise can be, in case of war, a deadly clue to a ship's location for an enemy with good listening equipment.

When an acute vibration problem does arise, the job of isolating the offending member out of a welter of whirling shafts, couplings, gears, and rotors is apt to be as baffling an exercise in elimination and deduction as the unraveling of the most complicated mystery. An incorrect diagnosis is apt to be just as embarrassing. To dismount a large gear and recut it, on the grounds that inaccuracies in its teeth are causing the vibration, is a fairly large undertaking. If the noise remains after the gear is remounted, any shipowner of less than angelic character might take a dim view of the proceedings.

Essentially, the first step in tracking down a vibration is to make a wave analysis of the noise, separating it into the various frequencies that compose it, and noting, of course, those that are dominant. In the past the wave form of the noise was recorded on paper or photographic film and then subjected to the tedious procedure of Fourier analysis. Later came the cathode-ray oscillograph by which it is possible to recognize quickly, and with high accuracy, whether a given frequency component of the noise is an even multiple of a selected shaft speed. Comparison by this method is limited to frequencies that are not more than about 40 times the speed of the shaft. On-the-spot comparison is permitted, and suspicion can immediately be focused on the few members which are capable of producing the dominant vibrations.

In a paper on "Vibration Diagnosis in Marine Geared Turbines," H. G. Yates describes a new instrument, known as the wave correlator, which permits accurate, rapid, and simultaneous comparison of the frequencies in the noise spectrum with as many as four shafts or other revolving parts.

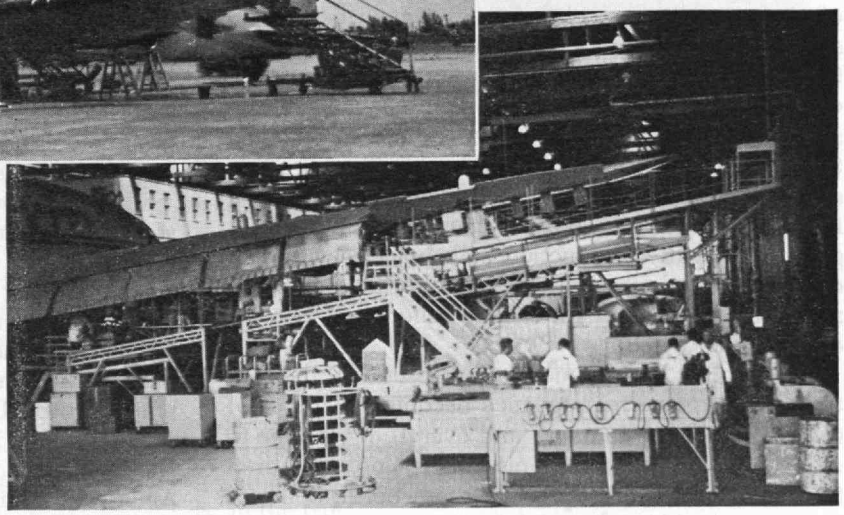
Experience has shown that a first multiple vibration is due generally to an eccentricity of some sort, that is, an unbalanced rotor. The presence of a second harmonic generally indicates a bent shaft or some ovality. Higher harmonics may be associated with the number of teeth on a gear or even with the number of teeth in the hob that cut the gear. The bolts which hold a coupling together can give a vibration that is an exact multiple of the shaft rotation, and if the coupling is misaligned, harmonics can form. The technique is sufficiently complicated so that case histories are essential for a clear understanding, and Yates gives a few from marine practice.

In one of these cases quoted, blade failures were occurring in one expansion stage of the high-pressure turbines in certain vessels of a class, but not in all. The gearing was noisy, and it was thought that perhaps the turbine blades were resonating to some vibration set up by the gear teeth. The use of an oscilloscope showed that one of the dominant frequencies was the 12th harmonic of the high-pressure turbine shaft. A glance at the shaft showed that it was con-

* Strictly speaking, the decibel (abbreviated db) is the 10 times common logarithm of two-power ratios and cannot be used to express absolute values of power, energy, voltage, or current. But if some arbitrarily established value of power is used as the reference, any other value of power can be expressed in decibels above or below the reference level. In acoustics, reference level (0.002 dyne per square centimeter) represents a sound which is just audible at 1,000 cycles per second. If this value is used as the zero reference level, 120 decibels would represent a power level of 200 dynes per square centimeter. On occasions, the noise of thunder and of riveting hammers has been measured as rising to 120 decibels which gives some indication of the intensity levels referred to. But it is well to emphasize that the decibel is not a unit of sound or noise, as is altogether too commonly stated.

Photos by C. E. Patch, '02

The economical operation of air lines depends upon keeping time for airplane maintenance to a minimum. The illustration above shows line work being done on an apron at the overhaul plant at Kansas City, Kansas, to keep the Trans World Airline fleet of transports in trim with a minimum of lost time.



At Miami, Fla., an airplane of the Eastern Air Lines (above) *is being dismantled in preparation for complete check-up and overhaul. Engines have already been removed from the wings for replacement. In the overhaul hangar at Kansas City, Kansas* (right), *Trans World Airline makes use of permanent work platforms under the wings of transport airplanes to facilitate performance checks, repairs, and maintenance of its transport airplanes.*

nected to its primary gear by a 12-tooth coupling; the gears themselves were not to blame. Sister ships with a 12-tooth coupling of different design were free of blade failures.

In another case of turbine blade failures, however, dominant multiples of 50 and 125 were immediately isolated by the wave correlator. Both harmonics were traced to errors in the hobbing machine that had cut the gears.

Ounce of Prevention

By C. E. Patch

True today, as ever it was, is the homely old proverb that a stitch in time saves nine. The maxim of grandmother's day points up the moral that repairs made while an injury is slight eliminate major damage at some future time. In grandmother's time the adage was limited in its application to wearing apparel, but today it has application to all manner of articles, including the airplane.

The airplane is a piece of equipment that will pick 60 or so people up and hurtle them through the air at speeds which would have made grandmother gasp. One of these chariots may cost a million dollars or more with a large additional amount added for spare parts. The only time when it can contribute to the income side of the air-line budget is when the airplane is in the air. Thus it is axiomatic that high utilization of equipment is necessary to the profitable operation of an air line. A companion adage is that planes must be well maintained to be safe.

The air lines themselves are doing everything in their power to meet the requirements of the first axiom, and the Civil Aeronautics Administration is seeing to it that in doing so they also meet the requirements of the second.

The Civil Aeronautics Administration has set up certain minimum requirements for all airplanes flown by licensed operators. These requirements cover not only the airplane proper, but the engines, accessories, and equipment. When a new or newly overhauled plane has had 50 hours of flying time, certain specified checks must be made. When 125 hours of flying time have passed, a second set of checks must be made, and at 250 hours still other checks are required. To make these checks there must be certain person-

nel and equipment available at the point where the airplane lands at the expiration of the various flying-time allowances. There are, however, further demands made by the Civil Aeronautics Administration which require more personnel and equipment. For instance, after some 800 or 900 hours the engines must be overhauled, which means that they must be removed from the airplanes and carefully checked in a time-consuming operation. For economy of operation, no airplane could be permitted to sit on the ground while its engines were being overhauled, or even long enough for the break-down and build-up of the power plant or "egg" as it is sometimes called. This egg is an assembly of the engine, together with certain accessories and equipment, in a frame which can be attached as a unit to the wing or fuselage. At the point where power-plant replacement is done, therefore, spare units, all assembled and ready for attachment, should be on hand. After some 8,000 or 10,000 hours of flying time, the airplane itself must have a complete structual inspection and overhaul.

The maintenance and repair of airplanes thus constitute a problem in the safe and profitable operation of air lines, all of which have developed methods of servicing planes with a minimum reduction of flying time. To this end it has been found economical for each line to provide centralized maintenance facilities at some suitable point on its routes and to schedule the flight of its airplanes so that each will be arriving at the central maintenance station in time for major inspection, servicing, and overhaul. To one who has grown up with construction schedules or with the customary methods of transportation, the tempo of airplane flight and maintenance scheduling is a bit quicker than presto.

The familiar line, "Time is of the essence of the contract," in airplane maintenance becomes, "Time is of the essence of the contact," and everything is done to reduce to a minimum the time an airplane is required to remain in a check-up or overhaul berth. Some of the means to this end are interesting.

A number of overhaul hangars have electrically operated work platforms hung from the overhead structures so that the platforms can be swung down quickly under the airplane's wings, and thus save the time and man power necessary to rig them from the floor. In other hangars, airplanes are towed into permanent platforms set up for each type of airplane and castered stagings are moved in while the fuselage, wings, and other parts are inspected. Some plants schedule each operation as to time and man power on a horizontal line chart. This schedule is mounted on one face of a swiveled panel in the wall of a planning or production booth from which the overhaul is controlled.

Additional economy is effected by preparing the service point for airplane arrivals. Prior to the arrival of the airplane, a planning clerk draws from stores all the accessories and equipment known to be needed for the overhaul. These are properly tagged with yellow tags and arranged in a castered bin to be placed adjacent to the plane when it is towed into the overhaul berth. The accessories and equipment removed from the airplane are marked with green tags and are exchanged for the yellow-tagged material, thus saving valuable service time. The green-tagged items are later taken to the proper departments for overhaul, test and return to stores, and are worked on without losing flying time.

The economies of operation resulting from such forehanded planning are considerable and can easily make the difference between profitable and unprofitable operation of an air line. It is even possible that some of the lines have become so proficient at overhaul operations, and have gained such a high utilization of their equipment, that they might operate at a profit without the government subsidy.

It's in the Bag

GRANDMOTHER was accustomed to purchase most of her victuals in bulk lots from the general store. She would bring along her own container for a quart or two of milk, confident that all traces of its contents from the last shopping trip had been removed. She was not adverse to weighing out the required amount of flour, sugar, or beans which her large family required. The ever-present cracker barrel, around which the townspeople discussed their crops, the weather, and political issues, yielded its product to grandmother who carried away her purchases wrapped in newspaper. If her grocer were a really progressive merchant, possibly a fresh, brown paper bag would be substituted for last week's newspaper.

But mass production, improved sanitation, and standardization have changed the ways of a former generation. In contrast, today's housewife need feel no concern lest the milk taste of kerosene, for she seldom, if ever, buys food in bulk. Instead, she finds that her food products have been accurately weighed and packaged in attractive and convenient containers which protect their contents until ready for eating.

This change in merchandising methods, which science and engineering have made possible, benefits the American family in several ways. Prepared foods reach the American table fresher, crisper, and cleaner than was possible half a century ago. In addition, there is less waste, and the quality of products is uniformly high, instead of depending upon the vigilance of the local merchant.

A recount of the progress which has been made should not dim perception of present needs, however, nor should it blind us to tomorrow's potentialities. To assure that this does not occur, America's food industry continues the search for still better ways of bringing palatable nutriment to the tables of the world's people. Its extensive research organizations and facilities are not alone carrying out this program, but are supplemented by those of many of the country's colleges and universities.

Needless to say, the Department of Food Technology at M.I.T. is making its own contributions to the betterment of the world's food products. One would naturally expect to find studies in biochemistry and flavor, in refrigeration and dehydration, playing the leading roles in the Department's research program, and such is, indeed, the case. But science, like politics, often breeds strange bedfellows. It is not surprising, therefore, that some of its ancillary research projects

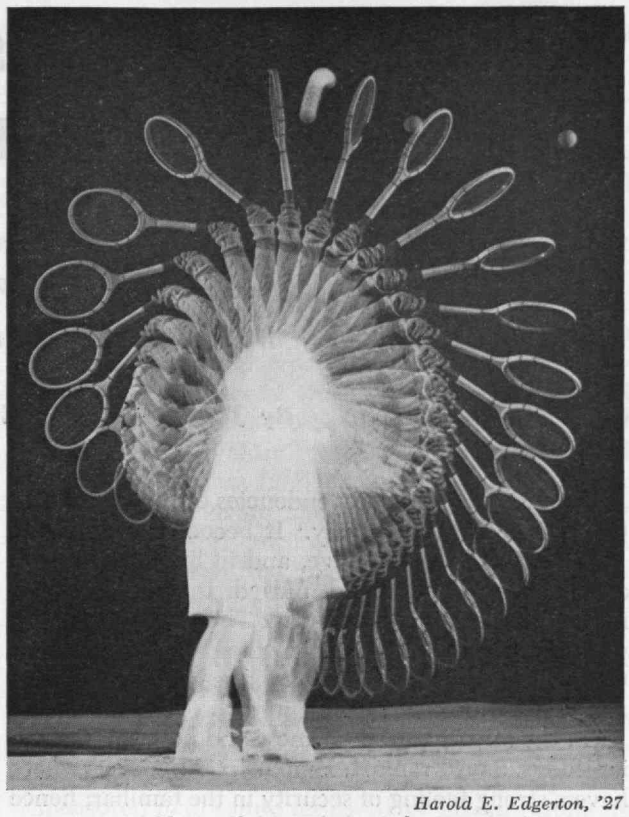
are quite as interesting and important as those which are obviously along the main stem.

For years, processed foods have been sterilized by application of high temperatures for varying periods of time. But sterilization by dielectric heating, or by irradiation with x-rays and cathode rays, also shows promise of being equally effective. Furthermore, these methods give promise that sterilization may be accomplished after foods have been packaged, thereby removing any possibility of contamination so long as the container is properly designed and made, and reaches the ultimate consumer in good condition. Similarly, the steps which popularized quick freezing permit processing to be done after packaging.

Before such promising processing methods can be used on a large scale, however, it is necessary to know how they may affect food flavor and preservation. It is also necessary to know how the processing of packaged foods is likely to affect the properties of packaging materials with which foods are protected. Will sterilizing rays affect the molecular structure and alignment of packaging materials? Will they alter the permeability and porosity to gases and water vapor? Will they produce minute perforations or cause brittleness and cracking? How shall the properties of packaging materials be tested, specified, and standardized so that results from different laboratories may be correlated?

Questions such as these are under investigation in the Packaging Research Laboratory, which is directed by Professor Bernard E. Proctor, '23 and Arthur H. Landrock, '49. During the past year investigations on the permeability of packaging materials to water vapor and other gases, and on the effect of a fumigant (ethylene oxide) on transparent food-packaging materials have been carried out.

Much of this work (particularly the studies on permeability to water vapor) has been conducted in cooperation with the Packaging Materials Testing Committee of the Technical Association of the Pulp and Paper Industry. The need for such industrial association co-operation becomes apparent when it is recognized that data thus far obtained by different investigators are expressed in different ways and, at present, the results from one laboratory cannot be correlated with those obtained in other laboratories. Moreover, none of the methods which has been used so far for testing the permeability to water vapor at freezing temperatures is sufficiently developed and universally used as to warrant adoption. Tests by individual manufacturers of packaging materials differ widely, not alone in the measuring techniques used, but in the results obtained with the same materials. It follows that there can be no science in a field in which no consistent measurements are obtainable. Thus, one major aim of the present research of the Packaging Research Laboratory is to investigate the presently used methods of testing packaging materials, to correlate the different types of measurements now in use, to develop a uniform method of testing which correlates results obtained by different techniques, and to foster standardization in the testing of packaging materials through the development of a uniform test procedure.



Harold E. Edgerton, '27

Professor Harold E. Edgerton, '27, of the M.I.T. Department of Electrical Engineering, made this interesting multiple-flash picture with techniques which he developed. No headless horseman but, like a peacock preening, the swirling arm is that of the famous French tennis player Robert Abdesselam.

No one can foretell, with certainty, what will be the outcome of such investigations. Although appearing more or less routine to the casual observer, nevertheless work in progress gives promise of fundamental importance to the human diet. But of one thing we can be reasonably sure. Success, like the food which grandmother brought home from the general store, is "in the bag."

Tin Used to Make Gasoline

DEVELOPMENT of an economical way to speed the conversion of soft coal to synthetic gasoline and oil has been reported by United States Bureau of Mines chemists. The crux of the new technique is a catalyst, or chemical accelerator, which paradoxically contains substances that by themselves interfere with the synthesis of liquid fuel.

Investigations showed that tin is a fairly active catalyst for promoting the direct combination of hydrogen with bituminous coal of the Pittsburgh seam type to form liquid fuel; but acids containing chlorine proved worse than ineffective; they retarded the process.

A mixture of tin with a chlorine acid, however, is probably the best catalyst available, although carbon tetrachloride or any other material which generates chlorine acids can be employed. Under appropriate conditions it has been found possible to replace 90 per cent of the tin by zinc, which is much more available in the United States, without appreciable loss of catalytic effectiveness.

Gossip
AS AN ELEMENT OF SOCIAL CONTROL

This Study of the Factors Comprising Gossip Aims to Answer the Famous Query, "What Will Mrs. Grundy Say?"

By **JULIAN A. JOFFE**

One of man's innate tendencies expresses itself in a desire for security.[1] It becomes apparent in his inertia to change, and in his reluctance to accept anything new and untried. It is very evident in his basic social conservatism. Thus, often, the very poor are the most stubborn in their ways! They fear the unfamiliar; they dread to lose what little they might have been able to acquire.

On the other hand, they know and believe in familiar things. Says Frank H. Hankins:[2] "Men everywhere have a strong feeling of security in the familiar; hence they hold on to their traditional beliefs and ways tenaciously. . . . It includes . . . the desire for the security of the self as it is pictured, idealized, and cherished by one's self."

To sustain life, people find it behooves them to unify or integrate it. They must maintain and discover ways of retaining what they have acquired. Various devices are employed by man to accomplish these ends, among which tools gossip serves as a potent social force of control.

We may observe, as has Joseph S. Roucek,[3] that: "Social control is a collective term for those processes, planned or unplanned, by which individuals are taught, persuaded, or compelled to conform to the usages and life-values of groups." The aims of social control are therefore, obviously, "to bring about conformity, solidarity and continuity of a particular group or society."[4]

Gossip is a universal and powerful societal tool. We all dislike to be "talked about" because we cherish social approbation and fear disapprobation. "Gossip is, as a rule, a sufficient instrument of control in small local groups, where the behavior, and even the attitude of each is known to all. It is of little importance in the large city, where the sense of community is lost. This is one of the primary reasons why urban centers must have large numbers of police, in spite of whom they become the chief centers of crime, delinquency, vice and corruption, and other forms of antisocial behavior in civilized societies."[5]

Although he does not specifically mention gossip, no doubt Edward C. Hayes[6] could include it among his extralegal aspects of social control. For him, public opinion is the most significant and potent form of all the varieties of social control. He says: "Public sentiment remains the most original and persuasive and probably also the most powerful of all agencies of social control by sanction. It is capable of progressive development, as the experience of ages becomes crystallized in definite judgments, incorporated into the "common sense"; as newly developed possibilities of good and evil become more generally understood; as the general level of personality is raised by the agencies of education; and as the method of organization gives increasing definiteness and publicity to social responsibility."

In his classic work, *Social Control: A Survey of the Foundations of Order*, Edward A. Ross does not include gossip among his 14 headings of the means of social control.[7] However, in the work of Frederick E. Lumley it is found among his forces, as a negative means involving repressive action by restraint or counterconditioning.[8]

"While some 'gossip' may be innocuous, that which concerns social control is largely critical in tone. Gossip helps make myths and legends and is effective in formulating public opinion. Gossip is the 'voice of the herd,' thundering in our ears, telling us that the goblins of ridicule, ostracism, and punishment 'will get us' if we don't behave."[9]

Closely associated with gossip as a tool of social control may be enumerated praise and flattery, although they are employed in a positive sense rather than in a negative manner. Whereas, gossip is indicative of a reproach, the other two connote "a sort of reward in words, especially from upper to lower strata and induce social amenability and conformity."[10]

There are additional aspects of this problem of equal importance. "Calling names or hurling epithets, especially at others whom one dislikes is an old device of control."[11] This form is not too dissimilar in character from gossip, although the former is employed vis-à-vis, while the latter usually is more generally conveyed through several parties. More direct types of verbal controls are commands, threats, and censorship. These are, of course, based upon force and power and indicate impending restraint unless conformity results. The individual has to choose from two alternatives: to comply, or to suffer for his acts. There is no subtlety!

It might be fruitful to learn the significance, meaning, and derivation of the word "gossip" and thereby to arrive at a better understanding of the term and its current usage. For this the *Encyclopaedia Britannica* has the following to say:[12]

Gossip (from the O.E. *godsibb, i.e.,* God, and *sib,* akin, standing in relation to), originally a god-parent, *i.e.,* one who by taking a sponsor's vows at a baptism stands in a spiritual relationship to the child baptised. The common modern meaning is of light personal or social conversation, or, with an invidious sense, of idle talebearing. "Gossip" was early used with the sense, of a friend, or acquaintance, either of the parent of the child baptised or of the other god-parents, and thus came to be used, with little reference to the position of sponsor, for women friends of the mother present at a birth, the transition of meaning to an idle chatterer or talker for talking's sake is easy. The application to the idle talk of such persons does not appear to be an early one.

At this point, I believe it would be appropriate to distinguish between gossip and another word that is frequently confused with it. Reference is made to rumor. From the dictionary[13] we learn that rumor is derived from Old French, French, and Latin words meaning noise, prolonged and indistinct. From this basic meaning rumor degenerated into terms signifying: (1) "A flying or popular report; the common talk; tidings; hence, public fame; notoriety; reputation." (2) "A story or report current without any known authority for its truth." (3) "To noise abroad." (4) "To give out tidings of."

A writer on rumor has defined it as "a specific (or topical) proposition for belief, passed along from person to person, usually by word of mouth, *without secure standards* of evidence being present."[14] In every rumor there is the implication that some truth is being communicated.

In spite of its unfavorable aspects, there is, strangely enough, at least some understandable basis for rumor. Allport[15] remarks: "One of the most important psychological sources of rumor is peoples' desire to understand and to simplify the many complicated events and developments which follow each other, often with bewildering speed. Rumor serves to make things simpler than they actually are." Rumors "are spread to relieve, justify and explain . . . underlying emotional tensions."[16] Gossip, on the other hand, is employed against an individual who has strayed from the fold or group. It is used to bring him back into conformity with group behavior.

Nature of Gossip

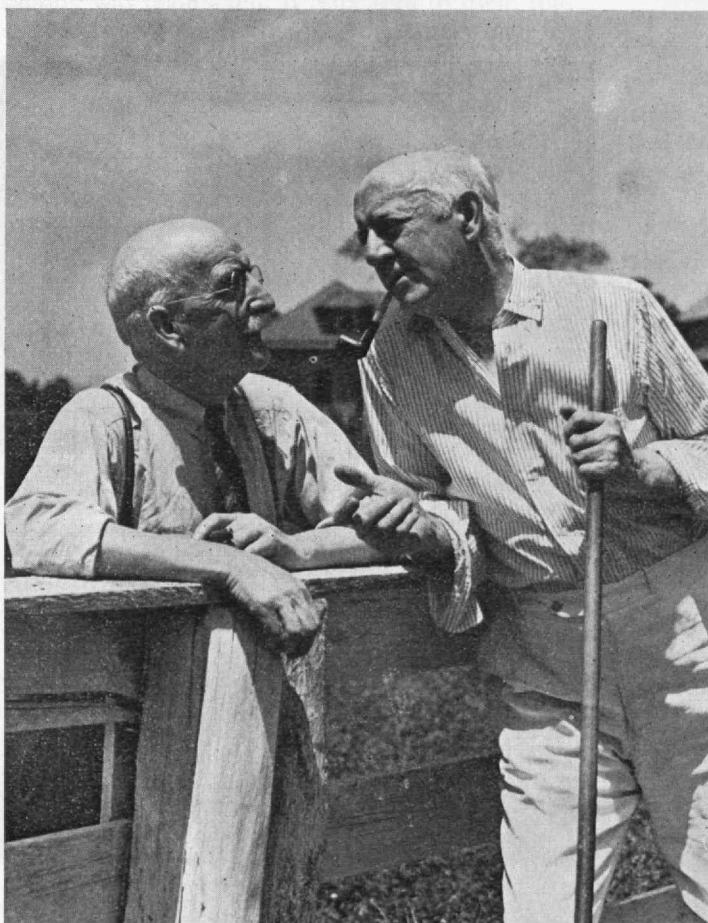
Through its very nature, gossip is efficacious only where people are neighbors or circulate in relatively close and self-contained units. If strangers live in close proximity, verbal castigations or efforts at intimate social control become meaningless, because the people do not know each other sufficiently for any effectual results, and they care less. Thus, gossip has little force in urban centers of concentrated population, unless it be within small circles, associations, churches, or other groups bound by some especially intimate ties. Its greatest sphere of value is found in relatively sparsely settled communities, where people are neighbors and each knows the other's business. For its greatest effect, gossip requires that people meet on numerous footings: social, political, religious, communal, civic, and so on. "The gossipy restraints of small town life are absent in the apartment house."[17]

Gossip is expressed intolerance for the nonconformist. It connotes a degree of personal insecurity on the part of the conformist who betrays his fears for his own position and for that of the group of which he is a member. It functions to better advantage in rural areas or less densely settled localities. On the other hand, "In the city it is news rather than rumor, publicity rather than gossip, that bind the varied social groups."[18]

Personal insecurity, although the important factor implicit in gossip, is closely associated with the degree of antagonism that exists toward the individual who strays. The degree of animosity is conditioned by the intensity of the insecurity. However, it is a fact that people may be close friends and yet disagree vehemently on certain fundamentals. Such friends would not normally gossip about one or the other, for the sacredness of friendship would interfere. It would therefore appear that gossip, conditioned by personal insecurity, depends upon dislike and antagonism for its employment.

From the above observations I should like to suggest a formula that seems to express the relationship existing between gossip and personal insecurity, antagonism, and solidarity of the people involved. There is no attempt to convey or hint that gossip can be measured in absolute terms. Since gossip results from emotions and is dependent upon human forces it could not be quantitatively evaluated with any degree of fineness. However, the resultant gossip can be roughly stated as being intense, severe, mild, negligible, and so on. Personal insecurity, antagonism, and solidarity would be restricted and qualified in the same manner. Of course, there are those who believe that the social sciences can be studied and analyzed

Harold M. Lambert



with the same degree of perfection as the physical sciences, but to that school of thought the writer does not subscribe.

It appears that the amount of gossip engendered by a particular set of circumstances is directly proportional to the personal insecurity of the gossiper, his antagonism toward the dissenter, and his solidarity. Thus, in symbolic notation:

$$G \backsim I \times A \times S$$

where G represents the magnitude or effectiveness of gossip generated

I represents the personal insecurity on the part of the member of the group

A represents the antagonism felt toward the dissenter, and

S represents the solidarity within the given social group

Conclusions Evident from the Formula

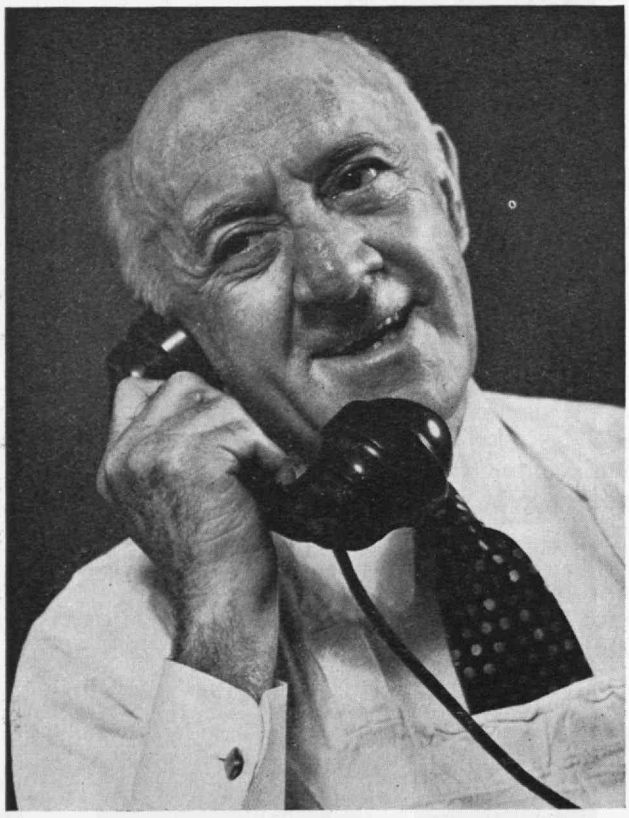
Gossip is ineffectual unless all three factors are present. The intensity of the gossip depends upon the magnitude of the factors in the social configuration.

For people closely knit within any group, this expression of severe antagonism toward one member who engenders great personal insecurity upon the others would result in gossip of a virulent nature.

With an absence of solidarity (as in an apartment house) there would be no gossip, although antagonism and insecurity might be present, for there would be no effective way of influencing the disturber to cause him to mend his ways.

For the gossip to achieve its purpose, to accomplish the degree of social control desired, the object about whom there is discussion must respond and conform.

Harold M. Lambert



Consequently, to be meaningful, the formula should be duo-directional – the behavior of the erring one must be expressed therein for him as well. The effect of the gossip is, therefore, dependent upon the personal insecurity he experiences vis-à-vis the group, his degree of antagonism toward it, and the extent of his solidarity toward the given social group. If, in any one of them, his attitude be completely negative, his response will be nil. Contrariwise, his behavior will be influenced in the proportion in which he accepts personal dependence within the group, approves it, and is one with it.

In *Plainville, U.S.A.*,[19] James West writes of a sociological study conducted in a small, closely knit community. Since his observations and findings are germane to this article they are to be examined briefly in relation to the previously suggested formula. Mr. West finds that: ". . . Plainville is a community in the sense that all the people who live or trade there are labelled together under the name of their town."[20]

The lot of the newcomer is difficult: "toward 'strangers' or 'outsiders' (sometimes called 'foreigners'), however, constraint or even real hostility is frequently felt."[21] The newcomer is diligently evaluated and his "ultimate full status, however, depends on the number and kind of ties he and his family are able to establish in the formal social structure of the community."[22] The stranger must cease his nonconforming ways before he is accepted: prior to that he is viewed with suspicion, resentment, and antagonism.

West's personal experiences and treatment fit into the pattern, for throughout the introductory pages to his book he speaks of the insecurity which the Plainviller felt as a result of his presence and his questioning.[23] He was viewed with "suspicion, great constraint and even resentment,"[24] but when he began to conform (with the aid of a townsman), he was accepted.[25] It must be borne in mind that for the purposes of his study it was essential that author West be "one" of the Plainvillers.

In such an atmosphere, observe what West has to say about gossip:

> The role of actual legal organization among all the other mechanisms which force Plainvillers to conform to this society's established patterns of behavior is really very slight. More important mechanisms, both preventive and punitive, for social control are gossip, ridicule and in the wildest sense of the term, folklore. These function "individually" of course, but they also function "by groups," and it is necessary to describe the organization which I shall call "loafing groups" and "gossip groups." Every Plainville group, no matter its primary function, is of course partly a gossip and loafing group too.[26]

Of one such group West writes:

> The gossip is . . . dreaded and hated. They are said to "fight every progressive thing in the community" . . . they are against schools . . . against good clothes . . . against being the least bit modern . . . against anybody having a good time.[27] . . . The religious control of morals operates mainly through gossip and fear of gossip.[28]

From West's *Plainville U.S.A.*, it would again appear that gossip as an element of social control originates from within a closely knit group. For its employment and efficacy, gossip is dependent upon personal

insecurity, antagonism, and solidarity. For the gossip to be worth while, it must reach the ears of the wrongdoer, otherwise it is wasted effort and useless. It is not indulged in merely to pass the time of the day, although a good deal of aimless conversation appears under the name of gossip.

The following illustrations portray cases wherein gossip was used as a potent tool of social control. The cases illustrate varying degrees of its effect, dependent upon the intensity of personal insecurity, antagonism, and social solidarity. They are culled from experiences in two communities: one of about 70,000 and the other of about 4,000.

Profitable Sale — with Drawbacks

Recently a plot of wooded ground behind the homes of several neighbors on one block was in the process of being purchased. In the midst of the negotiations, another member of the community, Mr. Z, bought it. The land in question was so situated that it could not be developed for real estate speculation except at disproportionately high costs.

When it was learned that the woods behind their homes were grabbed away from them, the feeling ran high among the several families involved. Mr. *B*, who was more incensed than the others announced that his home was being put up for sale to Negroes, unless the land were returned to the original people and at a cost no more than they should have paid. Speculative profit was to be completely omitted.

A furor of gossip burst forth within the neighborhood. The lawyer who had been the prime mover in the deal was approached by many people to forestall any unfortunate consequence. The leaders of the religious organization of which the buyer and the attorney were communicants exerted their powerful influences. The head of the realty board made numerous calls and visits.

Had Mr. *B* considered himself an integral part of the group, obviously he never would have threatened to destroy it by frightening the neighbors with the thought of Negroes living within their midst. The personal insecurity of the people within the immediate community was not vital to him, although it was a vital factor to Mr. Z. Life was made rather unpleasant for him as was evidenced by the short speech he made before the papers were signed turning over the land to the neighbors and their families. All, seemingly, accepted his protestations when he said he had never meant to make a profit from his neighbors. He claimed to have bought the land as an investment. So many people had approached him in the few weeks during which he held title that he was anxious to sell. He stated his regret that he had ever become involved in the venture, even though he had made a profit in the transaction.

Harold M. Lambert

In this instance the breakdown of sentiments of those involved in the community was as shown in the table below, in which the center column indicates the component of gossip which was effective. From this tabulation, it is clear which man gave in.

It is only fitting to recall that, although admiring Mr. Z for his general business acumen, the neighbors were much disturbed over the manner in which the transaction was conducted. It appeared to them that Mr. Z might have anticipated the concern which his actions engendered in the community and, for a time, he was mercilessly berated.

Mink — in the Morning

Mrs. *A's* husband had recently retired from business, in very comfortable circumstances. The family moved from a crowded urban section to the relative freedom of a private house, with lawn and quiet streets which were very inviting to Mrs. *A*. Undoubtedly, in her former home she had had little opportunity to walk amid trees and grass. It is to be assumed that her former associates had been somewhat slovenly, for no sooner was she settled in her new residence than she proceeded to take morning constitutionals, clad in a nightgown topped by a long mink coat. Of course her feet were shod in bedroom slippers. Apparently, neither Mr. *A*, nor their adult children saw anything incongruous in the costume.

(*Continued on page 118*)

Mr. Z toward the Community	*Community toward Mr. Z*	*Gossip Factors*	*Community toward Mr. B*	*Mr. B toward the Community*
Insecure without community	Great insecurity	*I*	Great insecurity	No concern
Desire to please	Antagonism	*A*	Antagonism	No concern
Great solidarity	Great solidarity	*S*	Great solidarity	No concern

Myths of Aviation —

Early Gliding Experiments of John J. Montgomery Are Evaluated against a Background of Seven Decades of Progress in Aeronautics

By FRED C. KELLY

EVERY so often a legendary story finds its way into print that a man named John J. Montgomery, early in the 1880's, made successful gliding experiments in California; that he made contributions to aviation ahead of the Wright brothers. A few years ago a Hollywood studio even made a motion picture that dealt with Montgomery's supposed early exploits and the publicity department of that studio sent out statements that historians must revise their beliefs about who was the real pioneer in American aviation. Fancy historians being guided by Hollywood!

The truth is that Montgomery did no successful gliding in the 1880's; no invention of his is used in airplanes today; no theory originating with him has withstood the test of time; and his work contributed nothing, either to the art of flying or to the science of aerodynamics.

Montgomery himself never claimed to have made more than one gliding flight prior to those of the Wrights in 1900. At the Chicago World's Fair in 1893, he spoke before an aeronautical meeting, but made no mention in this talk of having glided. However, he told Octave Chanute of his early glider, and Chanute recorded the facts, as accurately as he could, in his book *Progress in Flying Machines,** page 248, in 1894. Chanute reported that the glide was from the top of a hill which sloped at an angle of about 10 degrees; that it was made in a sea breeze "blowing steadily from 8 to 12 miles an hour"; that it started with a "jump into the air without previous running"; that Montgomery and his machine together weighed 170 pounds; that the wings had an "area of about 90 square feet"; and that "the total distance of the glide was about 100 feet."

Now, present-day engineers know that a glider, such as Montgomery described to Chanute, could not have gone 100 feet without a higher, much higher, relative wind velocity of eight to 12 miles an hour. Any aeronautical engineer would agree with what Orville Wright wrote in 1944,† that a machine having a wing area of only 90 square feet, with camber as used by Montgomery, cannot lift more than 20 pounds at a speed of eight miles an hour, and not more than 45 pounds at 12 miles an hour, or not more than one eighth to one fourth of the weight of Montgomery and his machine. In two later machines, Montgomery added more than 50 per cent greater wing area; but Chanute recorded that these, too, proved to be failures because not enough lifting effect could be obtained to carry the weight. If Montgomery had been able to get enough lift with his first machine, by merely making a leap without any preliminary run, why, one wonders, did he never try that machine again? Why did he add 50 per cent more surface to his next machines? Surely no engineer, in the light of present-day knowledge, would accept that Montgomery's glide could have been more than 10 or 15 feet in a machine capable of lifting only one fourth of the weight to be carried. When, 10 years after the event, Montgomery told Chanute of the glide, there had been time for the distance to grow in his recollection to the extent of 100 feet.

After another 15 years the distance of that glide grew to 600 feet! That report appeared in a book by Victor Lougheed, entitled *Vehicles of the Air.*‡ Indeed, whatever fame is attached to the name of John J. Montgomery in aviation history appears to have come almost entirely from propaganda put out by Lougheed. Lougheed's interest in aviation was not that of a disinterested historian. In the same year that he put out his first edition of *Vehicles of the Air,* he entered into a written contract with Montgomery. In this contract Loughheed agreed to finance the manufacture of power-driven or other machines, and to furnish money for the sale and exhibition of airplanes. Later he was an expert witness for the Montgomery family in a lawsuit they brought against the United States Government, which had bought planes invented by the Wright brothers. Indeed, it was believed that the praise heaped upon Montgomery by Lougheed was what caused the family to bring the suit, seeking to prove that Montgomery was a pioneer in aviation. The Montgomerys lost the suit. In handing down its opinion, the Court of Claims said: "It seems to us idle to contend that Montgomery was a pioneer in this particular art."

In 1905, some time after the success of the Wright brothers at Kitty Hawk, a glider designed by Montgomery was lifted to a height of several thousand feet by a hot-air balloon, then freed from the balloon to make a spectacular descent with a pilot aboard. Several flights were made, but on July 18, 1905, the machine turned over on its back, collapsed and fell to

(*Concluded on page 110*)

* New York: *American Engineer and Railroad Journal,* 1894.

† Letter to Major R. H. Fleet, Consolidated Aircraft Corporation.

‡ London: Benn Bros. Ltd. – T. Fisher Unwin, Ltd., 1910.

—The Satellite Rocket

Much Valuable Scientific Information Might Be Supplied by an Artificial "Moon" which Rocket Engineers Hope to Launch into Outer Space Some Day

By WILLY LEY

One of the last reports written by James Forrestal, in his capacity as Defense Secretary, contained a short paragraph, stating that official studies had been made dealing with the subject of an orbital or satellite rocket. Of the many millions of people who read excerpts from the Defense Secretary's report in the newspapers, only a very small percentage had a clear mental picture of what was meant by the term "satellite rocket." Unfortunately there is no better word for the concept involved; the term refers to a rocket which revolves around the earth like a satellite after its fuel supply has been used up. That it happens to be an artificially created satellite does not alter its astronomical status in any way.

The news of Secretary Forrestal's report, of course, was merely that such studies were mentioned in an official document; otherwise the idea was not really new. There had been a fair amount of technical literature about satellite rockets in German, beginning in about 1925 and continuing until 1936 when the Nazi Government restricted discussions on rocket research which, thenceforth, became both secret and official.

Although nothing specific has been said either in the Forrestal report or in a later official release, a difference in concept seems to be involved between the current line of reasoning and that prior to about 1936. The German literature of the pre-Hitler period dealt with manned artificial satellites, which were intended to serve as refueling stations for piloted rockets. The leading thought had been that, at some future time, rocket development must arrive at the point where a piloted rocket could take off from the earth, attain a circumglobal orbit and be able to return and land on earth, with a reserve of fuel. It was proposed to leave most of the possible excess fuel on an artificial satellite so that after a dozen or so trips to the satellite, the piloted rocket would be able to fill its tanks to capacity from the accumulated reserve and take off from the satellite for a really long trip into interplanetary space. Because all the early proposals had to assume the use of piloted rocket ships, the creation of a satellite rocket appeared possible of achievement only in the remote future. An artificial satellite was "obviously" useless without at least one observer, and an observer could reach the satellite only by piloted rocket.

But now, because of technological progress in the field of telemetering, fundamental thinking about satellite rockets has been altered. True, telemetering did exist in 1930 and even earlier, but with the exception of some early models of radiosondes, all the telemetering anybody thought of, was done (or would have been done) over a wire. Nowadays, with telemetered instruments almost common, the situation has changed. Because we now have instruments which not only register their readings but which can also report their findings by radio, a satellite rocket can be quite useful without a living observer. Therefore, a satellite rocket which can precede the piloted rocket ship becomes a technological possibility. Furthermore, the satellite rocket need be but a fraction of the size that a manned satellite would have to be. Consequently (while the piloted rocket is still a development for the future) its possibility is much nearer of accomplishment than was possible under the old proposals.

An unmanned but instrument-equipped circumglobal satellite rocket would be a valuable aid to science since it could be used to inform us about many things. Among the most obvious are: the cosmic-ray density near our planet but outside its atmosphere; the density of interplanetary gas;* the temperature a body will assume in space near earth; and the drop in temperature which takes place when it enters the shadow of the planet. It is even possible that, in a manner to be outlined later, such a satellite rocket would furnish information about the average number of impacts of meteroric dust particles of perhaps less than one-tenth millimeter in diameter.

A satellite rocket, circling the earth 300 or 800 or even 1,500 miles from its surface, is fully as subject to terrestrial gravity as a boulder at the seashore. The difference is simply that the rocket is moving with a high velocity relative to the earth, whereas the boulder is not. It is well known that any object at the earth's surface will fall some 16 feet during the first second after its support has been withdrawn. Now imagine two guns, at the same height above the earth's surface and both firing horizontally, but with different muzzle velocities. Assume that the muzzle velocities are half a mile per second in one case and a full mile per second in the other. One second after firing, both projectiles will have fallen 16 feet. If we measure the height of the projectiles above the ground at the end of the first second, we find two different figures. The projectile which was fired with the higher muzzle velocity

* The so-called "Grimminger Report" estimates a number density of 8.4×10^8 particles per cubic centimeter at an altitude of 400 kilometers (250 miles) with a mean free path of 6.7 kilometers or about 4 miles.

will be a little higher above ground than the other. The reason is that the earth is a sphere and its surface curves away from the trajectory of the projectile. The influence of gravity does not vary and the curvature of the earth is a constant. Consequently, after the lapse of a number of seconds, the projectile which has moved faster over a given distance horizontally will be higher than the slower projectile; its trajectory will be shallower, as shown in the diagram below.

Obviously there must be a horizontal velocity resulting in a curve so shallow that it matches the curvature of the earth itself. It is comparatively easy to calculate that this velocity is almost precisely five miles per second, or five times the maximum velocity of a *V-2* rocket. This figure is valid at the surface of the earth, but naturally the experiment could not be actually made at the surface because of air resistance. It would have to be made outside the earth's atmosphere and at least 300 miles from the surface. In that case the horizontal velocity required would be somewhat less than the five miles per second which is valid at the earth's surface.

The orbits of satellite rockets can be calculated by well-known astronomical methods. There are, of course, an infinite number of such orbits, each orbit of specified mean distance from the earth having an orbital velocity associated with that distance, and a period of revolution which is determined by the velocity and by the length of the orbit. Sorting some of the possible orbits according to the time required for one complete revolution, we obtain the following table:

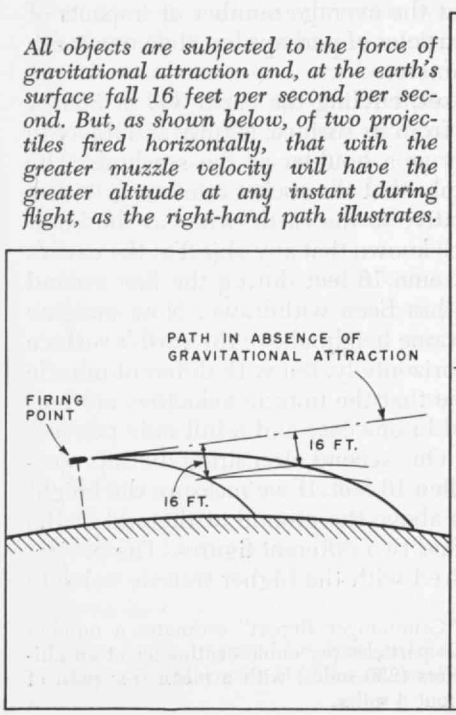
Period of Revolution	*Distance from Surface*
1¾ hours	470 miles
2 hours	1,200 miles
3½ hours	3,200 miles
4 hours	4,000 miles
7 hours	7,700 miles
24 hours	22,300 miles

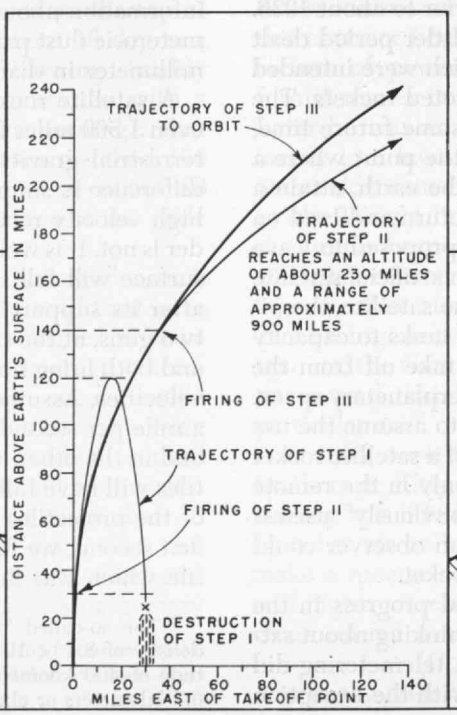
The last case would produce the interesting phenomenon that a rocket whose orbital plane coincides with the plane of the equator would seem to be motionless over one point of the equator; but it would probably be of little use otherwise. Even if this last case is ruled out, the choice of a useful orbit is still not a simple problem. The considerations influencing the choice are rather contradictory. Two factors speak in favor of a high orbit. Instruments in the rocket are intended to increase knowledge of conditions in interplanetary space, and since conditions will be more "pure" the farther the instruments are from earth, we have one factor favoring a high orbit. The other is that a rocket could be observed, both visually and by radar simultaneously, from a larger area the farther it is from the earth. A rocket in a 470-mile orbit, moving in the plane of the equator, could not be observed at all from any point in the United States because the bulk of the earth itself interferes with the line of sight.

The factors in favor of a low orbit are mostly of a practical nature. A low orbit is easier to establish. The angular movement of the rocket would be higher which would be very useful for navigational purposes and measurements generally. Finally – and this may be decisive – the range of the telemetered instruments may be insufficient for a high orbit. The difficulty of observing a rocket in a low orbit can be circumvented by making the plane of its orbit deviate appreciably from the plane of the equator. If, for example, the plane of the rocket's orbit were tilted 40 degrees to the plane of the equator, the rocket would be almost vertically over New York City from time to time and could still be checked by observation posts all along the Canadian border.

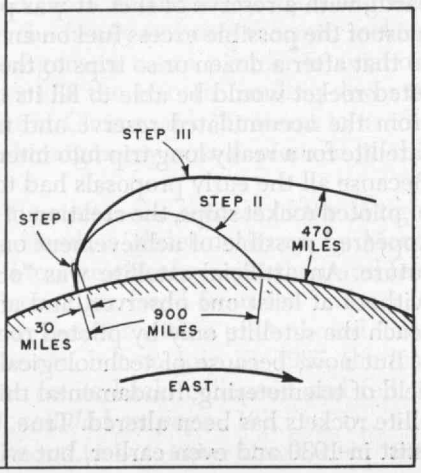
Placed in such an orbit the rocket would, in time, pass vertically over any point between 40 degrees northern and 40 degrees southern latitude. Because its period of revolution is far different from the period of diurnal rotation of the earth, the path of such a

All objects are subjected to the force of gravitational attraction and, at the earth's surface fall 16 feet per second per second. But, as shown below, of two projectiles fired horizontally, that with the greater muzzle velocity will have the greater altitude at any instant during flight, as the right-hand path illustrates.





Diagrams illustrating the trajectories of a three-step rocket designed to travel in an orbit 470 miles above the earth's surface. The center diagram is an enlargement of a portion of the diagram below, and illustrates in greater detail the trajectories near the point at which the rocket is fired.



rocket, projected on a Mercator map, would be a zigzag line with 40 degrees north and south as the limiting points. Merely by its existence, such a satellite rocket would produce a useful fix for navigational purposes. The fact that it moves fast is most useful for some purposes. The satellite will move through almost four degrees of arc in one minute of time so that the measurements checked at frequent intervals would show significant changes. This might prove especially useful for long-range missiles of the cruising type which are actually unmanned airplanes of one type or another. Human navigators can work satisfactorily with natural celestial bodies, but a robot navigator will probably need additional aids, such as a radar echo bounced off the satellite rocket for example.

A suitably built satellite rocket could be used to provide a wealth of scientific data. Such a rocket could obtain a complete solar spectrum continuously, except when it is in the earth's shadow. The visual brightness of the rocket might provide a clue to the density of cosmic dust. If we imagine that the rocket leaves the earth with a polished hull, its specular reflection should be gradually converted to spread – and even ultimately to diffuse – reflection by the impact of tiny cosmic particles with a corresponding change in its visual brightness. As the reflectance of the rocket diminishes, its temperature must increase because more solar radiation will be absorbed and less of it reflected back into space. From the reduction of visual brightness, observed directly, and the increase in temperature, reported by the instruments, the probable number of cosmic particles could be established within reasonable limits. Provided that enough power is available, the rocket might even transmit a television picture of the earth which should enable meterorologists to judge general meteorological conditions over most of the planet. Whether the satellite rocket could also replace the Iceberg Patrol in this manner would depend solely on the resolving power of its instruments. At present this appears doubtful but not impossible. In short, the satellite rocket would be a research instrument of the highest value and of unique opportunities.

Naturally there are quite a number of problems still to be solved before one could begin the design of such a satellite rocket. One is the means by which power is to be provided for operating the instruments. Batteries, as used in other research rockets, would be useless because they would provide power for only a few hours, whereas the main value of the satellite rocket lies in its permanence. Aside from the unlikely possibility that somebody may invent a novel method of storing electric energy which will support a small drain for years, there are mainly two possibilities deserving of some thought. One is based on the fact that, at any given moment, the sunward side of the rocket will necessarily be warmer than the other side, and also warmer than its interior. This fact may make possible the application of thermoelements as a source of power. If, as now seems likely, such thermoelements should be either too low in energy conversion or too heavy, or both, one might think of a small nuclear reactor as a power source. Since it might not need any shielding, such a reactor could be made relatively light and small in size. And it should produce enough power to energize all the instruments that could possibly be crammed into a fairly small rocket.

So far the discussion has been about the theoretical background of the whole subject and about the results which could probably be obtained. Now let us look at the engineering requirements of the rocket itself, restricting ourselves to one particular orbit, the 470-mile orbit with a period of revolution of about 100 minutes. The orbital velocity which the rocket would have to have for this case amounts to 4.6 miles per second. In order to become a satellite, the rocket must first of all be able to reach the 470-mile altitude, at which it must attain a horizontal velocity of 4.6 miles per second. Is such a feat possible? Part of the answer is to be found in earlier rocket flights.

The largest rocket which has performed satisfactorily is still the ex-German *V-2* which has reached a maximum altitude of 118 miles and a maximum velocity of almost precisely one mile per second. This rocket weighs roughly three metric tons when empty, carries a one-ton war head (which would become an instrument chamber in the orbital rocket) and can hold eight tons of fuel, consisting of liquid oxygen and ethyl alcohol with an admixture of 25 per cent of water by volume. The take-off weight, therefore, is 12 tons, while the weight after all fuel is consumed is four tons, and is made up of empty rocket and instrument container. Because the mass ratio is the total take-off mass divided by mass remaining after fuel consumption, rocket designers say that such a rocket has a mass ratio of 3 to 1. Theoretically a rocket with a mass ratio of 2.7 to 1 (more precisely $e : 1$) will attain a final velocity, v, which is equal to its exhaust velocity v_o. If we call the take-off mass M_o and the remaining mass (which includes the pay load) M_1 we can express this relation very simply as

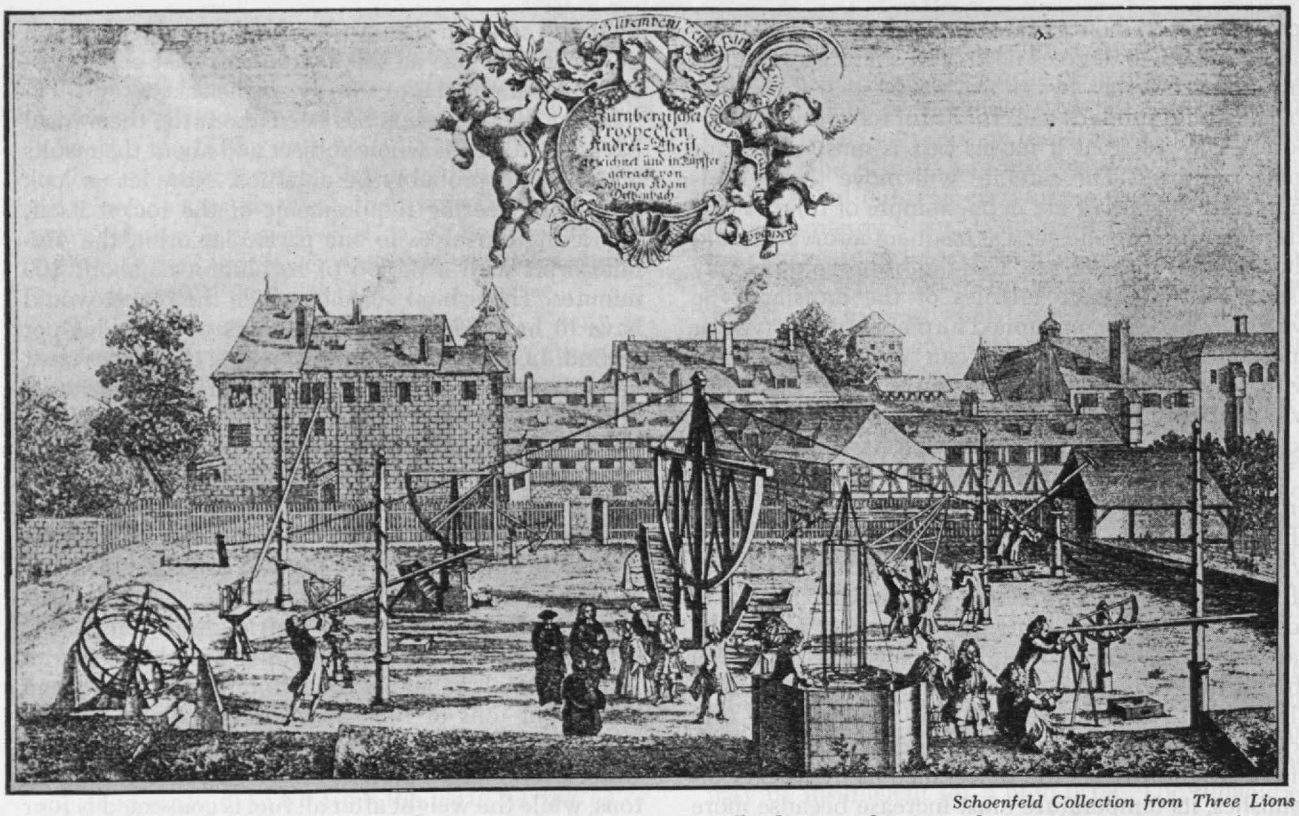
$$v = v_o \text{ when } M_o/M_1 = e$$

It must be remembered, however, that this formula is strictly valid only in empty space where there is no air resistance and a gravitational field of such small force as to be negligible.

The exhaust velocity of the *V-2* motor amounts to a little more than 7,000 feet per second. Consequently, if the relations given above were valid on the earth's surface, the *V-2* rocket should attain a velocity of 7,000 feet per second even if its mass-ratio were only 2.7 to 1. The mass ratio of the *V-2* is close to 3 to 1, but its maximum velocity, as has been mentioned, is about one mile per second instead of the theoretical mile and a third. The difference is caused, in part, by air resistance but the greatest discrepancy results from the need for the rocket to overcome the force exerted on it by the earth's gravitational field. If we expect a single rocket to assume an orbit around earth, we shall need either a much higher exhaust velocity or a much higher mass ratio; in all probability both would become necessary. With equal probability it now appears that neither figure would be attainable in reality.

The way out of this dilemma was demonstrated on the White Sands Proving Ground in New Mexico on February 24, 1949 when a *V-2* rocket took off, carry-

(*Continued on page 112*)



Schoenfeld Collection from Three Lions

Since the invention of the telescope, the history of astronomy is essentially that of reflecting and refracting instruments of constantly increasing size. In contrast to present-day giants for astronomical observation, the illustration above shows a view of the observatory at Nuremberg in 1472, erected by the astronomer and mathematician, Regiomontanus, maker of astronomical instruments. Certainly one of the oldest, if not the first observatory of modern times in Europe, this observatory antedates the invention of the telescope by about 135 years.

Giant Follows Giant

A 120-inch Pyrex Disk, Leftover from the 200-inch Mount Palomar Instrument, Will Become a Telescope in Its Own Right

By DAVID O. WOODBURY

GIGANTISM is no longer news in astronomy, now that the great Palomar telescope has settled down to its life work. But there is an interesting footnote to the Palomar story. Metaphorically speaking, it has begotten a second instrument, like itself a giant. A disk of glass, 120 inches in diameter, originally designed to test the big fellow, is to become a telescope in its own right, after lying unused for 16 years. It will be the second largest instrument in the world when completed.

The new Pyrex disk, actually older by some months than the 200-inch, has been sold to the University of California and will presently go to work at the famous Lick Observatory on Mount Hamilton. The knowledge and experience gained in 21 years of pioneer work on the 200-inch will be fully shared with the designers of the new instrument, saving much time and expense, and eliminating much uncertainty.

The long saga of the Palomar project began, in 1928, with a series of discouraging experiments with fused quartz. When this material proved unworkable in large masses, the Palomar designers turned to Pyrex glass as a second choice, but with misgivings. Since it was doubtful whether huge sizes could be cast without cracking, they asked the Corning Glass Works to begin modestly, with disks a few feet in diameter, and work up to a casting suitable for the 200-inch reflector. If successful, the smaller disks could be used as auxiliaries in the 200-inch telescope. They were completely satisfactory and were eventually ground and polished to fit into the Cassegrain and coudé systems on the instrument. All were thus used except the largest, the 10-foot disk, which weighed more than four tons.

But the 120-inch was no orphan. It was intended to be used for the vital but short-lived duty of making the final laboratory tests on the paraboloidal surface of the 200-inch mirror. For this service it was to be ground and polished optically flat, and by an ingenious arrangement of a point light source and auxiliary mirrors, would provide the collimated, or parallel, beams of light essential to test the parabolic form of its big brother. This man-made point source of light was the best substitute that suggested itself for an actual star at infinity; the astronomical source was impracticable because the 15-ton disk was to be figured two days' journey away from Palomar Mountain.

The preparation of the 120-inch optical flat, it was admitted, would be no simple matter. It must have its

own grinding machine; it must then wait until the big fellow was ground and semipolished to a true spherical surface, whereupon the main glass could be used as a testing instrument to determine perfect flatness of its smaller brother. This would be an elaborate and time-consuming job.

Soon after the disks arrived at the optical laboratory in Pasadena, the designers began to wonder if there were not some simpler way to achieve and test the 200-inch paraboloid. After extended calculations, the easier solution was found, in which a special lens, the usual Foucault pin-point light source and knife edge were employed. The lens was made and the test eventually set up and used with success. To verify results obtained from this test, a second method, using the Hartmann statistical sampling scheme, was introduced. The big mirror finally went to Palomar, leaving the 120-inch behind, an orphan after all. Its sale recently fills in a gap that would otherwise have had to be chalked up to experimental overhead.

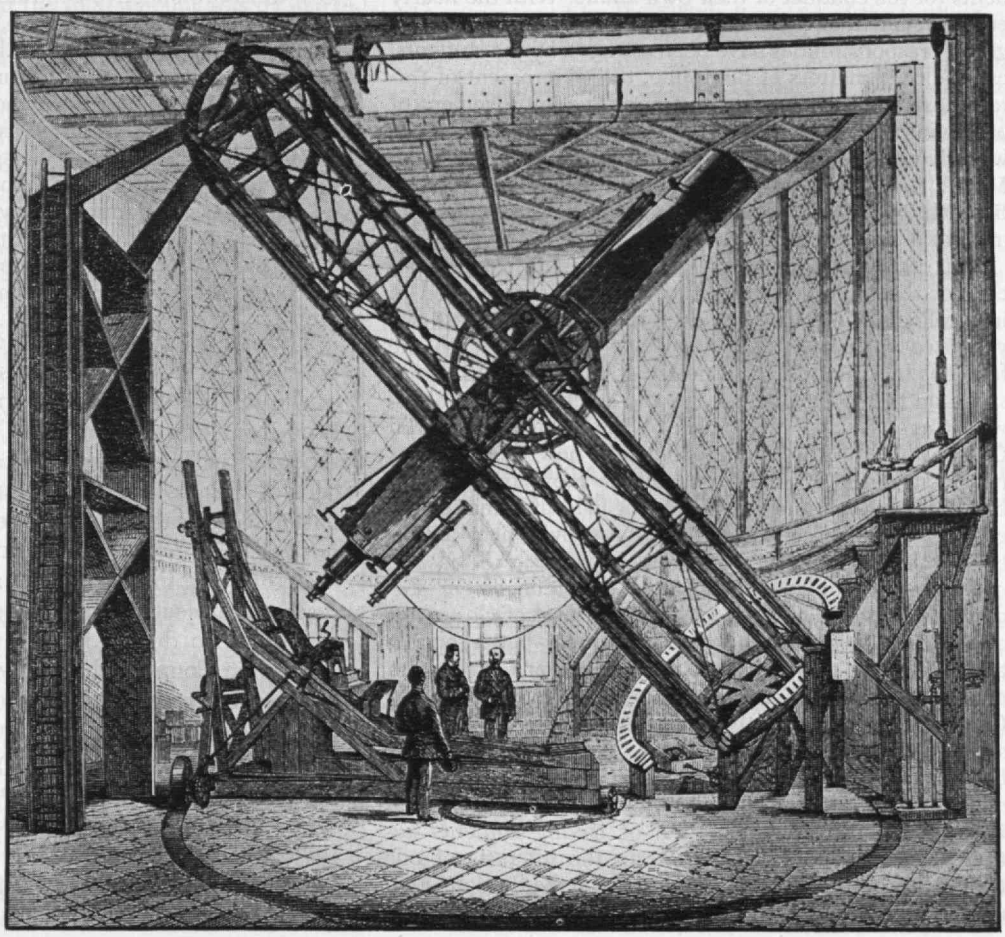
Today, everything that was learned on the Palomar job will be used to advance the telescope-making art in building the Mount Hamilton instrument. Most important will be the location of the optical shop in the basement of the observatory itself. This will mean that in the final stages of parabolizing the glass, when but millionths of an inch of material must come off, the mirror can be hoisted into its telescope mounting in a few hours and tested directly on stars.

A second advance will be that in the earlier stages of shaping, optical tests will be made on the glass without changing its position as it lies flat in the grinder. A hatchway will be provided in the observatory floor and the Foucault instruments will be installed high in the dome on the overhead crane, the testing axis being vertical. The importance of such vertical testing was realized very early in the work on the 200-inch mirror, which had to be stood on edge and held that way, while Foucault readings were taken along a horizontal axis. The result was that small displacements of the surface, introduced by gravity and the complication of the supporting mechanisms, influenced the test data making their evaluation very difficult. The improved technique, alone, should save much time and worry.

A number of lesser advances will also be made. While the telescope will have a fork type of mount, it will employ the oil flotation bearings developed for the 200-inch. The telescope tube, also, will be a structural unit of similar design, arranged to distort under gravitational stresses without bending the optical axis. Most interesting will be the use of a man-carrying cylinder at the main focus in the mouth of the tube. There was plenty of room for this in the original giant. To avoid blanking out too large an amount of starlight the tube will revolve eccentrically about the optical axis of the smaller telescope.

Perhaps no branch of pure research is less competitive than astronomy. And in the present case the closest co-operation will be set up between Mount Hamilton and the Palomar-Mount Wilson groups. Although the two instruments will have nearly the same focal length and photographic speeds, and will do the same

(Concluded on page 110)



The equatorial telescope at the Royal Observatory at Greenwich, near London, represented another giant of astronomy. With its 12.5-inch objective, the telescope shown at the right was installed in 1862 and for many years was the largest refractor in England.

The Royal Observatory was founded in 1675 for the definite purpose of improvement of navigation. Sir Christopher Wren chose the site and designed the first buildings for which Charles II granted £500. Because of progressive deterioration in conditions for astronomical observations at Greenwich, the 274-year-old observatory was recently transferred to Sussex.

Since 1884, the Greenwich site has served as the reference meridian from which longitude is measured.

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THE INSTITUTE GAZETTE

PREPARED IN COLLABORATION WITH THE TECHNOLOGY NEWS SERVICE

Science and the Humanities

REPORTED last month in these columns was that portion of President Killian's annual report to the M.I.T. Corporation which dealt with a review of operations for the 1948–1949 year, and the statement of the Administration's policy on academic freedom. It was in the first part that President Killian called for a fusion of science and the humanities, and outlined his educational philosophy. This month it is The Review's pleasure to summarize the remainder of President Killian's report which deals with a survey of student life at M.I.T. and statistical data on Institute operations.

During the period covered by the report, significant progress was made in improving student-faculty relations and student environment. Participation in student athletics increased markedly during the year and, to a much greater extent than was possible under more or less wartime conditions, students assumed increased responsibility in administering undergraduate activities at M.I.T. Speaking of these matters, President Killian said:

One of the striking aspects of student life at Technology is the high degree of responsibility accepted by our students for the conduct of their own affairs. With the hearty encouragement of the Office of the Dean of Students, even greater responsibilities have been assumed by the students, especially in matters of discipline, the government of fraternities and other housing units, and the improvement of our living environment. One aspect of this achievement was given national recognition during the year when the M.I.T. Interfraternity Conference was awarded the National Interfraternity Conference Trophy for contributing most to the life of its parent institution.

This past year over 2,200 undergraduates, or 60 per cent of the undergraduate student body, participated in intercollegiate and intramural sports. During the past two years we have been able greatly to extend our athletic facilities by the addition of nearly 400,000 feet of playing space on the West Campus, by the erection of the Rockwell Cage, by the renovation of the Walker Memorial Gymnasium, by the addition of eight new tennis courts provided by the Alumni Fund, by the provision of a new baseball diamond and new lights for field illumination for evening sports practice, and by the provision of a full-time athletic director and additional coaches.

Another example of the healthy condition of our student life at the Institute is the development of closer student-faculty relations and the creation of better opportunities for the two groups to work together for common educational goals. For many years our Student-Faculty Committee served mostly as a mechanism for handling student complaints. In the last two years, this committee has turned its attention to a constructive consideration of educational problems, and we now find ourselves in the interesting and happy situation of having students actively working with the Faculty in the interests of our teaching program. During the past year, the Student-Faculty Committee sponsored a series of open forums on the art of teaching, which were well attended both by students and by staff. At the opening of school this fall, this same committee sponsored a series of lectures for new instructors on the techniques of teaching.

Some time ago the Student-Faculty Committee proposed to the Institute that we set aside a pleasant and comfortably furnished room where students and faculty members can come together informally, and I am glad to report that we have been able to provide the space to make this room available.

The most significant improvement in our student environment during the year was the completion of the New Dormitory (The Review, **51**:25, 230, 282, 573, 575), now housing over 350 students. I hope that the fresh and forward-looking design of this great new housing unit has set the standard for additional dormitories at the Institute, all designed to promote friendly and responsible community living. We need additional living facilities to take care of at least a thousand more students on the Institute's campus, and the fulfillment of this need should have high priority in the months ahead. We need especially to replace the temporary barracks, now housing over 400 students.

Last spring we reorganized our dormitory and restaurant management under a Director of Housing and Dining Facilities (The Review, **51**:576). Frank M. Baldwin, who was appointed to this new post, will supervise our increasing facilities for student housing and dining services, to assure effective centralized direction. These services are now valued at over $5,000,000, and have an annual operating budget of more than $1,500,000. His duties include administration of all undergraduate dormitories, the Senior House, Walker Memorial, the Graduate House, and the Women's Dormitory, as well as our housing project for married students, Westgate and Westgate West. Broad policy relating to all housing will be determined by an Advisory Committee, which replaces the former Dormitory Board and which includes the Dean of Students, the Dean of the Graduate School, the Treasurer and Assistant Treasurer, and two members of the Faculty.

The major administrative change during the year, covered by President Killian's report, was the creation of the senior administrative post of provost, to which Professor Julius A. Stratton, '23, was appointed, as recorded in The Review (**51**:516). The primary concern of the provost is the administration and co-ordination of educational and research activities which do not fall within the jurisdiction of any single School, including the interdepartmental laboratories and the research projects of the Division of Industrial Coöperation. Also during the year there was created the Academic Council, charged with the responsibility of the executive co-ordination of the Institute's educational activities and of the administration of educational policy as determined by the Faculty.

Statistics of the Year. Financial statistics for Institute operations for the year 1948–1949 are covered in the report of Horace S. Ford, Treasurer, which is summarized separately on page 101 under the heading "Institute Finances."

Student enrollment continues at a high level, and although the postwar peak appears to have been passed, the Institute is still not able to accept all who apply for admission. This makes possible the maintenance of high standards through selection of the most promising students.

The total student body reached 5,433 in 1948–1949 compared with 5,662 in 1947–1948. As of September 21, enrollment for the present year reached 5,408. The enrollment of war veterans dropped from 54 per cent of the total student body in 1947–1948 to 48 per cent last year; during both years, 22 per cent were married. Included in the student body were 68 women. A total of 233 colleges and universities in the United States and 93 foreign educational institutions were represented. With 382 students from 60 foreign countries and comprising 7.1 per cent of the total enrollment, the Institute had the highest percentage of foreign students of any college in the country. There has been some decrease in the number of applicants for admission to the Freshman Class, as had been anticipated, but the number of applications for the Graduate School is still increasing.

More students received loans and part-time work last year than in the 1947–1948 school year. On the subject of student aid, the President's report states:

> The demands on the undergraduate scholarship funds and the Technology Loan Fund were greater this year than in 1947–1948 because of changes in general financial conditions and fewer students studying under the G.I. Bill. There were 394 undergraduate scholarships granted, totaling $89,914. Ninety-eight students received loans totaling $46,600. The total number of loans and scholarships was 463 and the total amount was $136,514. Some undergraduates held both scholarships and loans. Eighty-seven men received loans as of June, 1949, bringing the cumulative total from 2,729 (June, 1948) to 2,816 men. This group of 87 men were loaned $61,050, bringing the cumulative total loaned from $1,980,610 (June, 1948) to $2,041,660 (June, 1949).
>
> Total graduate scholarships and fellowships for 1947–1948 amounted to $176,880 and these scholarships and fellowships were granted to 233 recipients. This compares with a total of $142,702 distributed to 196 recipients in 1947–1948. This change was accounted for in large measure by the increase in the total number of industrial fellowships and a greater use of the funds available for graduate scholarships and fellowships. The number of fellowships sponsored by industrial companies totaled 85, with an aggregate stipend of $144,480.
>
> The Student Employment Bureau placed 458 students in part-time jobs in 1948–1949, as compared with 391 in 1947–1948. The 1948–1949 group earned $98,657 as compared with $75,507 earned by the 1947–1948 group.

Personnel Changes. Most of the changes in personnel listed in the President's Report have been announced as they occurred throughout the year. The latest group of promotions and new appointments is included on page 101 of this issue. The Corporation ranks have been changed only by reason of term expirations during the past year. John M. Hancock has been elected to Special Term Membership, and, as already recorded in The Review (**51**:111, 283), Donald F. Carpenter, '22, has been elected to Life Membership, and Rudolf F. Haffenreffer, '95, Robert T. Haslam, '11, George J. Leness, '26, and Luis de Florez, '11, are new Alumni Term Members. C. Adrian Sawyer, Jr., '02, replaces C. George Dandrow, '22, as President of the M.I.T. Alumni Association.

Fabian Bachrach

Ralph Lowell

Corporation Term Member – 1949-1954

The election of Ralph Lowell, President and Chairman of the Board of the Boston Safe Deposit and Trust Company, to term membership for five years on the Corporation of M.I.T. has been announced by Dr. Killian, President of the Institute.

Mr. Lowell, who was graduated from Harvard University in 1912, has long been associated with the financial life of Boston. He is sole trustee of the Lowell Institute, of which the Lowell Institute School, conducted under the auspices of M.I.T., is one of many of its educational activities. He is also a trustee and director of many educational, philanthropical, and charitable organizations, including the Perkins Institute for the Blind, the Massachusetts General Hospital, the McLean Hospital, Vincent Hospital, and the Boston Museum of Fine Arts

But the dry, statistical records which are part of every annual report fail to bespeak the character of a corporate body. With this in mind, President Killian concluded his report in the following words:

> One of the pronounced characteristics of M.I.T. is the unity of action made possible by the harmonious combination of Faculty members, officers of administration, members of the Corporation, students, and Alumni, which constitute our corporate body. This spirit of co-operation, combined with the superlative quality of our staff and students and the strength of this Corporation, underlies all the progress and forward-looking activities of the past year.

Progeny's Preference

INCLUDED among members of the first-year class at M.I.T. this fall are 35 freshmen whose paternal (and in one case both paternal and maternal) parents are

Technology Alumni. As was the case last year, the presence of one daughter in this group of 35 continues to prevent representation by sons only.

Registration for the Freshman Class in 1948 numbered 826 students – 49 of whom had alumni affiliations with M.I.T. The fall of 1949 shows a Freshman-Class count of 748, as of September 21, with the students listed below to share alumni activities in the future with their families. Although the 1949 Freshman-Class registration is about 10 per cent less than the 1948 figure, and the alumni-to-be group smaller this year by approximately 30 per cent over last year, the choice of M.I.T. by the group in the following list is indicative of a continued need for scientific and engineering training supplemented by studies in the humanities:

Student	*Parent*
Charles T. Abbott, Jr.	Charles T. Abbott, '30
Burton A. Babb	Maynard A. Babb, '28
Edward B. Beattie	Malcolm B. Beattie, '23
Bruce B. Beckley	Kenneth F. Beckley, '27
Robert H. Brown, Jr.	Robert H. Brown, '22
Charles D. Buntschuh	Henry C. Buntschuh, '28
Donald Carlson	Hilding N. Carlson, '13
Raymond A. Dietz	Walter Dietz, '23
Betty Ann Ferguson	William W. Ferguson, Jr., '26
Paul E. Gabrenas	Anthony P. Gabrenas, '26
James L. Gleason	Isaac W. Gleason, '26
John K. Glynn	John W. K. Glynn, '15
Standish C. Hartman, Jr.	Standish C. Hartman, '29
Edward S. Hickey	John J. Hickey, '16
John Hitchcock	Lauren B. Hitchcock, '20
Allan S. Hoffman	Saul A. Hoffman, '16
George W. Hooper	John R. Hooper, '27
James H. Howard, Jr.	James H. Howard, '25
Franklin M. Jarman	Walton M. Jarman, '25
William T. Kwan	Sung-Sing Kwan, '19
Nelson C. Lees	Malcolm B. Lees, '20 Cornelia N. Lees, '21
Clarence J. McDonough, 3d	Clarence J. McDonough, Jr., '25
Roger W. Maconi	Frank Maconi, '20
Frederick E. Mangelsdorf	Theodore A. Mangelsdorf, '26
Richard A. Neitlich	George Neitlich, '24
David A. Nelson	Dewey Nelson, '24
William B. Ryan	John F. Ryan, '22
Edward H. Schwarz	Edward R. Schwarz, '21
Henry S. Slayter, 3d	Rudolf S. Slayter, '28
Barry A. Stein	Hyman Stein, '30
Edgar L. Stolfer, Jr.	Edgar L. Stolfer, '29
Prasong Sukhum	Prasob Sukhum, '23
Christopher R. Whitcombe	Stanwood E. Whitcombe, '23
Ralph E. Wilbur	Harland A. Wilbur, '22
Stetson C. Winkfield	Holley S. Winkfield, '19

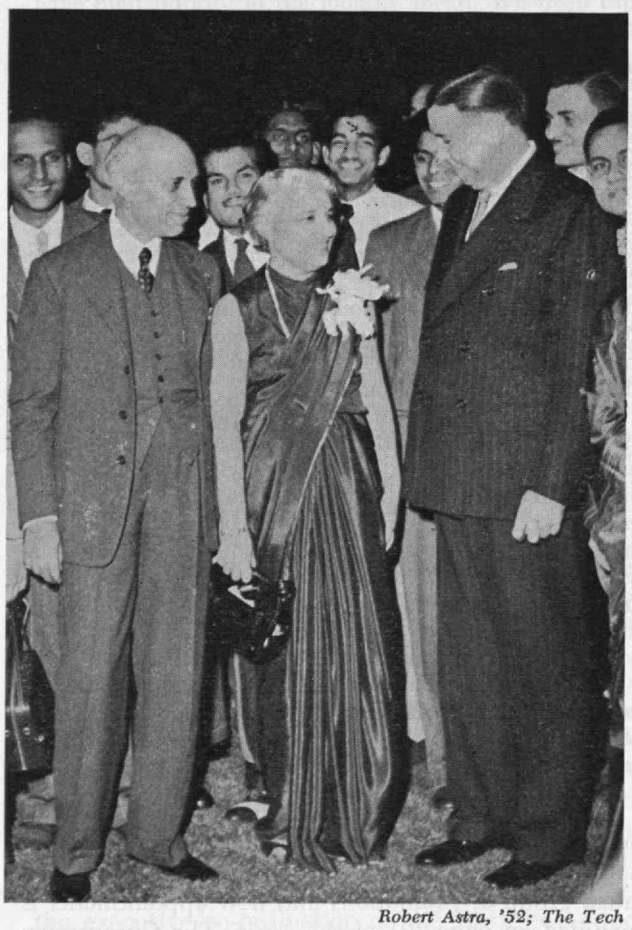
Addison F. Holmes: 1882–1949

THE death of Addison F. Holmes, '04, Emeritus Associate Professor of Applied Mechanics, at his home in Winchester, Mass., on November 5, marked the passing of an able teacher widely known to generations of Technology students.

Professor Holmes was born in Newton Upper Falls on September 16, 1882, and prepared for M.I.T. at the Mechanics Arts High School. He was graduated from the Institute in 1904 and immediately joined the staff as an assistant in the Department of Mechanical Engineering. In 1906 he became an instructor, and in 1919 he was promoted to the rank of assistant professor of theoretical and applied mechanics. He was advanced to associate professor of applied mechanics in 1925. Professor Holmes was retired with the rank of emeritus associate professor in 1948 and was appointed honorary lecturer. He continued his duties on the staff until a few days before his death from a heart ailment from which he had suffered for several years.

During World War I, Professor Holmes served as a major in the Army Ordnance Corps, and carried on special work for the Army at the Institute. He was a member of the Institute's teaching staff for 45 years, and conducted his duties in a quiet unassuming manner which won him many friends among his teaching colleagues and the numerous students who entered his classes. He was a member of the American Society for Testing Materials, American Association of University Professors, Scabbard and Blade, and the Army Ordnance Association. He was also author of articles on concrete.

Professor Holmes is survived by his wife, Stella G. Holmes. Funeral services were held in Winchester on Tuesday, November 8.



Robert Astra, '52; The Tech

Friendliness pervaded when the Honorable Pandit Jawaharlal Nehru, Prime Minister of India (left foreground) *and his sister, Mrs. Vijaya Lakshmi Pandit, Indian Ambassador to the United States* (center) *were greeted by Dr. Killian* (right) *at a reception and tea on October 21 at the President's House. Interest in the Nehrus' visit was enthusiastically expressed as shown by the attendance of members of the Hindustan Students' Association of Greater Boston – some of whom appear in the background of the above photograph.*

Institute Finances

IN the annual Treasurer's Report, presented to the Corporation on October 3, Horace S. Ford and Joseph J. Snyder, 2–44, Treasurer and Assistant Treasurer of the Institute, respectively, reported that M.I.T.'s endowment and other funds now possess a total book value of $47,200,000 invested in securities, with a market value of $50,200,000. Plant assets are approximately $2,654,000 above last year – standing at $22,243,000. Of this amount, $1,951,000 has been applied toward the construction of the Charles Hayden Memorial Library; $70,000 for additions to the Sloan Automotive Laboratories; $157,000 for the construction of the laboratory for the 12,000,000 electron-volt generator; $217,000 to complete the Rockwell Athletic Cage; and $175,000 has been set up as the book value of the Round Hill property at Dartmouth, Mass. The yield on investments based on book values increased somewhat over the previous year with the allocation to funds, however, at the previous rate of 4 per cent.

Operations totaled $23,353,000 for the 1948–1949 year, representing an increase of $2,300,000 over the previous year. Income and expense were distributed as shown in the accompanying flow chart. The following comparative percentage of distribution of the major elements of income and expense, during selected years for the past decade, shows the marked effects of sponsored research on the Institute's fiscal operations. Of special significance in these tables is the low percentage of total expenditures now required for plant operation and general administrative expenses.

Distribution of Major Elements of Income and Expense

1939–1940, 1947–1948, 1948–1949

Income

	Per Cent		
	1939–1940	*1947–1948*	*1948–1949*
Tuition	48	20	16
Investments	32	6	6
Gifts and Other Funds	7	8	9
Research Contracts:			
For Direct Expense	3	55	58
For Indirect Expense	0	5	6
Dormitories, Dining Services	10	6	5
	100	100	100

Expense

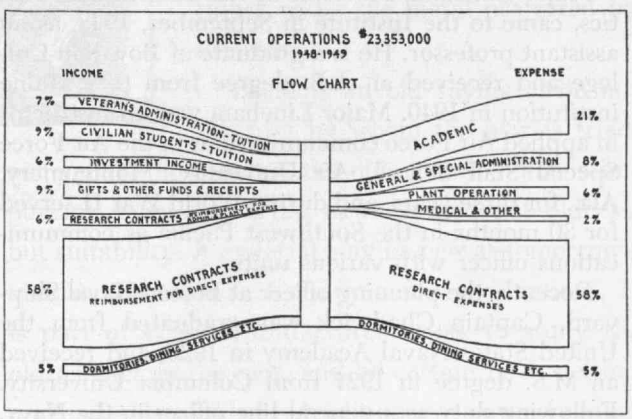
	1939–1940	*1947–1948*	*1948–1949*
Academic	61	24	21
General Administrative	13	7	8
Plant Operation	10	6	6
Research Contracts:			
Direct	3	55	58
Medical and Other	4	2	2
Dormitories, Dining Services	9	6	5
	100	100	100

The year 1948–1949 ended with a $231,736 deficit as a direct result of salary increases which went into effect during the year; it was felt that the increase was so essential that the Institute could properly incur a deficit this year. The increase in tuition (from $700 to $800 per academic year) which was announced a year ago took effect with the opening of school in September, 1949, and will go part way in helping the Institute to balance its budget. It is interesting to observe that the income from tuition has, throughout the years, almost always been equal to academic salaries, with income from investments and other sources carrying plant operation, administration, and related expenses.

Total gifts received each year since 1940 are shown in the following table:

	Capital Additions	*Total Gifts*
1940–1941	$ 511,949	$ 888,180
1941–1942	534,316	926,897
1942–1943	616,702	884,268
1943–1944	1,132,835	1,367,507
1944–1945	1,245,911	1,736,892
1945–1946	2,042,533	2,549,969
1946–1947	1,945,297	2,382,681
1947–1948	1,381,329	2,191,822
1948–1949	1,900,737	2,536,802

The total of gifts shown for 1948–1949 does not include pledges to the Development Program received during the year. As the M.I.T. Development Program moves forward, the additional funds will aid in stabilizing the Institute's finances while simultaneously providing better facilities for education and student living at M.I.T. One of the most heartening parts of the current trend in gifts to the Institute is the steady increase in support from industrial corporations. Nearly a quarter of the gifts received by the Institute last year came from industrial companies.



Readers of The Review will be especially interested to know that for the period covered in this report contributions to the Alumni Fund totaled $152,502 from 9,963 Alumni. This brings the total contributions to $1,209,639 for the nine-year period during which the Alumni Fund has been operating.

Faculty Family

THE fall of 1949 witnessed 41 promotions and new appointments on the Faculty and staff of M.I.T. To hold the rank of full professor are four: Robert R. Shrock, acting in charge of the Department of Geology; Major Thomas U. Lineham, Jr., Department of Military Science and Tactics; Captain Guy Chadwick, Department of Naval Architecture and Marine Engi-

M.I.T. Photos

Photographed above, reading from left to right, are: Robert R. Shrock, Professor of Geology, acting in charge of the Department; Major Thomas U. Lineham, Jr., Professor of Air Science and Tactics; Captain Guy Chadwick, Professor of Naval Engineering; and Captain James M. Farrin, Jr., '34, Professor of Naval Construction.

neering; and Captain James M. Farrin, Jr., '34, also of the Department of Naval Architecture and Marine Engineering.

Dr. Shrock, Professor of Geology, joined the Faculty at M.I.T. in 1937 as an assistant professor. He was promoted to the rank of associate professor in 1943, and from 1946 until 1949 has been an executive officer in the Department of Geology. Indiana University granted an A.B. degree to Professor Shrock in 1925, a master's in 1926, and in 1928, the degree of doctor of philosophy. Dr. Shrock taught geology at the University of Wisconsin from 1928 until 1937 when he came to the Institute.

Major Lineham, Professor of Air Science and Tactics, came to the Institute in September, 1948, as an assistant professor. He is a graduate of Bowdoin College and received an A.B. degree from that Maine institution in 1940. Major Lineham was an instructor in applied Air Force communications in the Air Force Special Staff School, Air University, Montgomery, Ala., for three years, and during World War II served for 30 months in the Southwest Pacific as communications officer with various units.

Recently the planning officer at Boston Naval Shipyard, Captain Chadwick was graduated from the United States Naval Academy in 1920, and received an M.S. degree in 1927 from Columbia University. Following duty as a general line officer in the Navy, he was placed in charge of designing machinery for a number of naval vessels in 1937, including the *U.S.S. Franklin D. Roosevelt*. Captain Chadwick is now professor of naval engineering at M.I.T.

Captain Farrin, who becomes Professor of Naval Construction at M.I.T., was head of the Preliminary Design Branch of the United States Navy Bureau of Ships in Washington, D.C., until his new assignment at M.I.T. He was graduated from Annapolis in 1929 and received his S.M. degree from the Institute in 1934.

Added to the list of associate professors at the Institute are: Alexander Bavelas, '48, and Max F. Millikan, both of the Department of Economics and Social Science; William A. Wilson, Department of Mechanical Engineering; Lieutenant Colonel Burton B. Bruce, '38, Lieutenant Colonel John W. Fitzpatrick, and Captain Jack W. Streeton, all of the Department of Military Science and Tactics; J. Whitney Perry, '31, Department of Modern Languages.

Welcomed to the rank of assistant professor are: Warren L. Towle, '34, Department of Chemical Engineering; Robert Solow, Department of Economics and Social Science; Thomas F. Jones, Jr., '40, Department of Electrical Engineering; William C. Bauer, '41, Department of Food Technology; Norman C. Dahl, '50, and Frank A. McClintock, '42, both of the Department of Mechanical Engineering; Harry Udin, '37, Department of Metallurgy; Captain Philip B. Anderson, Department of Military Science and Tactics; Martin A. Abkowitz, '40, Department of Naval Architecture and Marine Engineering.

Now joining the Institute's staff as instructors are: Delvin E. Kendall, Jr., '45, Department of Aeronautical Engineering; Robert Newman, School of Architecture; Robert G. James, Department of Business and Engineering Administration; Charles K. Leeper, '48, Edward A. Mason, '48, Richard C. Ross, and Charles W. Shipman, '48, all of the Department of Chemical Engineering; George L. Zimmerman, Department of Chemistry; Raymond Dennett, Roy Olton, and Herman T. Skofield, Department of Economics and Social Science; Ralph J. Kochenburger, '40, and John H. Van Os, Department of Electrical Engineering; Robert L. Koehl, Department of English and History; William H. Dennen, '42, Department of Geology; James B. Reswick, '43, Department of Mechanical Engineering; Frederick H. Buttner, '49, Karol J. Krystyan, James E. Reynolds, and James Wong, '48, all of the Department of Metallurgy.

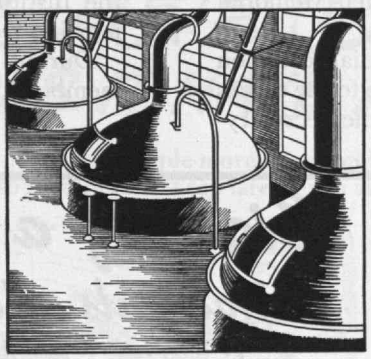
Carl B. Allendoerfer, professor of mathematics at Haverford College, has been appointed visiting professor of mathematics at M.I.T. for six months, beginning in February, 1950. At Haverford since 1938, Dr. Allendoerfer was recently on leave at the Institute for Advanced Study in Princeton, N.J. His research and publications have been in the field of differential geometry and the connections between differential geometry and topology.

(*Continued on page 104*)

BUSINESS IN MOTION

To our Colleagues in American Business . . .

The brewing industry has been in an expansion and modernization stage since the end of the war made copper freely available to it once more. New breweries are being built, and older ones enlarged, in order to meet the increasing demands of the public. As a result, the coppersmiths who fabricate brewing equipment have given Revere large orders for copper sheet and copper tube, which they turn into such items as brew kettles, mash tubs, lauter tubs, wort tanks, cookers, water heaters, and piping. Because the brewing of beer is necessarily done on a large-volume basis, the equipment is correspondingly huge. Orders for several hundred thousand pounds of copper are not unusual.



Though the brewing people thus are large users of Revere copper, they are not direct customers; the Revere customer is the coppersmith who fabricates to brewers' specifications. Nevertheless, Revere keeps a friendly hand outstretched to the brewer. Lately we have talked with quite a few brewmasters, and have found the same outstanding loyalty to copper that existed before the war and which has, in fact, been a feature of the brewing industry from its beginnings centuries ago. One master brewer, for example, said: "In planning the mammoth new installations for our $12,500,000 expansion program, copper was chosen because it is the most ductile metal for the fabrication of specially-designed brew kettles and related equipment; in keeping with time-honored traditions."

Brewing is, in fact, a remarkable mixture of tradition and science. Beer and ale are among the oldest of man's beverages, and all the evidence indicates that copper, probably man's first metal, has been used since the beginning. This ancient art relied upon the rule of thumb, experience, for centuries. It is now under a large measure of scientific control as well, the brewmasters' high talents being supported and confirmed by laboratory checks of materials. It is therefore especially gratifying to Revere that copper continues to be the metal preferred by brewers.

There is an old saying: "Be not the first by whom the new is tried, nor yet the last to cast the old aside." What is important, however, is not newness and not oldness, but suitability. A material may be new as tomorrow's sunrise, yet suitable for only a few applications. It is part of every manufacturer's task to study the old as well as the new, and be certain he is neither unreasonably wedded to tradition, nor unwisely eager to change for the sake of change. In making such studies he can and should call upon his suppliers, who, like Revere, are always glad to provide the latest and fullest information about their materials.

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New Alumni and Review Offices

SEPTEMBER 15 was moving day for the M.I.T. Alumni Association and its publication offshoot, The Technology Review. Visitors to the Institute who look for the Alumni and Review Offices at the old stand on the second floor of the Rogers Building will find that some space of the former occupant has now been converted into academic classrooms and that other areas are now used by the Industrial Liaison Office. Upon further journeyings, they will find Alumni activities now housed in new quarters on the second floor of Building 1, overlooking both Memorial Drive and Du Pont Court, in space formerly occupied by the Department of Economics and Social Science.

This move to new quarters was part of a broader plan of space redistribution to meet present needs of the Institute more satisfactorily. The change to new quarters in Building 1 was made possible when the Departments of Business and Engineering Administration and of Economics and Social Science moved into one wing of the new Charles Hayden Memorial Library last August.

Visitors to the Institute will find a cordial reception in Room 1–280 which is also the entrance to the offices of the Executive Vice-president and of the Secretary-Treasurer of the Alumni Association. The Alumni Office and Alumni Register are across the corridor in Room 1–275. Henry B. Kane, '24, as Director of the Alumni Fund, has his office in proximity with other offices in Room 1–272. The Technology Review occupies a suite of four rooms. Entrance to the Business Office is through Room 1–274, and to the Editorial Office through Room 1–281. A cordial welcome is extended to all readers of The Review to visit Alumni Association headquarters on their next visit to the Institute.

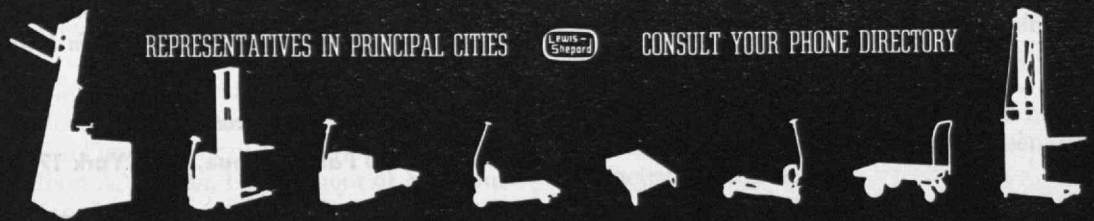
On the first floor of Building 1, space formerly occupied by the Department of Business and Engineering Administration has been remodeled and finished for the Alumni and Student Placement Office.

Kickoff

OPENING its 1949–1950 season, 128 members and guests attended the 270th meeting of the Alumni Council in the Graduate House on October 24. As President of the Alumni Association, C. Adrian Sawyer, Jr., '02, presided at this important business and social meeting at which announcement was first made of the formal opening of plans for general alumni participation in the program to raise $20,000,000 for the Institute by members of the Committee on Financing Development.

During the business portion of the meeting, new members of the Faculty, Class and Club Representa-

(*Continued on page 106*)

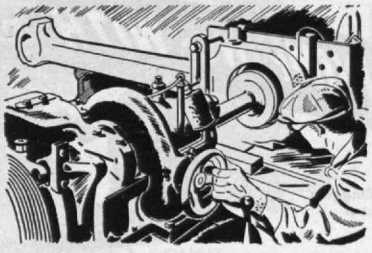


How Edwin Peterson might answer his 7-year-old son Paul. Edwin knows the answers. He's been around Norton for 30 years. In fact, ten percent of Norton employees have been on the job 25 years or more.

"GEE, DAD, WHY DOES IT HAVE AN UPSTAIRS?"

"To make traveling more fun. The idea is to give people more to see and do while riding faster and safer. That means more passengers for the railroads so that they can keep fares down and still add more comfort to long trips."

"Railroad comfort comes from many things, son. Smooth-fitting parts are important. Parts like Diesel engine crankshafts, pistons and wheels. That's why so many railroad shops use Norton grinders and Alundum grinding wheels to make parts smooth.



"Take those side rods on steam locomotives. They get farther over on the smooth side thanks to Norton internal grinding wheels. And parts are finished so accurately with Norton quality controlled wheels that they last for thousands of miles, Paul.

"Getting back to comfort . . . modern trains travel over 60 miles an hour. So, they need smooth rail joints. Those joints are welded for safety. Then, they're ground smooth and slotted with Norton grinding and cut-off wheels."

"Hundreds of other parts of modern railroad trains and tracks also get a lift from the sure touch of Norton Products. So does just about any other product you can name. That's why I'm not boasting when I say that Norton makes better products to make other products better."

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THE INSTITUTE GAZETTE

(*Continued from page 104*)

tives, alternates, and guests were introduced; resolutions on the late Professor Harry M. Goodwin, '90, and George M. Thompson, '73, were read and adopted by a silent rising vote; the minutes of the last Council meeting on May 23 were approved; and reports – all of which were subsequently approved – were submitted by the secretary, the Committee on Audit and Budget, and the director of the Alumni Fund.

For H. E. Lobdell, '17, publisher of The Review, Donald P. Severance, '38, Secretary and Treasurer of the Alumni Association, reported that The Review had ended its last year's operation with an excess of income over expenditures amounting to $13,644, which amount has been turned over to the Alumni Association. Also reported was a loss of $2,365 on Alumni Day last June, an amount well within the budgeted loss of $2,500. Changes in class affiliation were approved for 16 Alumni. The secretary also reported that, between May 25 and October 20, alumni clubs in 17 cities as far as London, Seattle, and Mexico City had been visited by members of the Institute staff or the Alumni Council.

In preparation for Alumni Day, 1950, Hugh S. Ferguson, '23, was named general chairman, and Allen Latham, Jr., '30, was designated as deputy chairman of the Banquet Committee. In contrast to the Saturday Alumni Days which had become customary during the war years, it was also announced that Alumni Day, 1950, would be held on Monday, June 12, at the Copley Plaza Hotel in Boston.

Recognition was withdrawn from four alumni clubs (three of which were outside the United States) that had been inactive for a considerable length of time; but the M.I.T. Clubs of Arizona and of Fort Worth were added to the list of active clubs which now numbers 82.

Mr. Sawyer then called upon H. B. Richmond, '14, chairman, Committee on Alumni Participation, to review recent progress in the Institute's campaign to raise $20,000,000 for endowment and capital needs. Mr. Richmond announced that general alumni participation in the fund would be opened on January 1, and he outlined the opportunities which Alumni would have to participate in this program as individuals. To reach the goal of $20,000,000 for M.I.T. postwar development, it is necessary that approximately 50 per cent, or $10,000,000, be obtained from special gifts ranging in size from $100,000 upwards; that 30 per cent, or $6,000,000, must be raised from Alumni and friends who can make gifts in four and five figures; that 20 per cent, or $4,000,000, will be raised by general alumni giving. It was also announced that, for the year beginning January 1, 1950, the Alumni Fund would be merged with the greater effort of the Committee on Financing Development.

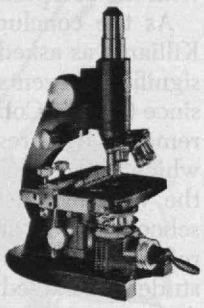
The second talk of the evening was made by Ralph

(*Continued on page 108*)

Latest in a Long Line of *Distinguished Spencer Microscopes*

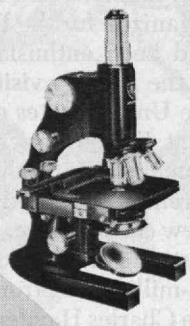
This completely new line of microscopes continues the tradition of quality established in 1847 by Charles A. Spencer, the first American microscope maker. You are cordially invited to see and try them. Ask your distributor or write Dept. Y3.

LABORATORY MICROSCOPES
for school and college use.

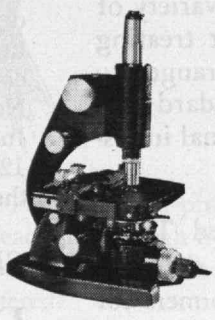


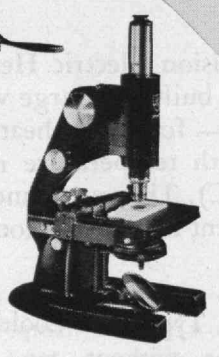
MONOCULAR MICROSCOPES
for medical, industrial, educational laboratories.

INCLINED BINOCULAR MICROSCOPES
for biological and bacteriological laboratories.



CONVERTIBLE MICROSCOPES,
binocular-monocular for advanced work.

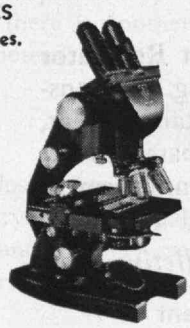




MOLD COUNT MICROSCOPES
for food processing.

BACTERIA COUNT MICROSCOPES
for dairy industries.

PATHOLOGIST'S MICROSCOPES



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SPENCER

THE INSTITUTE GAZETTE

(*Continued from page 106*)

T. Jope, '28, Assistant Executive Director of the Committee on Financing Development. He outlined the organization which had been set up, showing by map those portions of the United States to be served by the seven regional offices of the Development Committee. These offices will begin functioning this fall with the co-operation of local Alumni.

As the concluding talk of the evening, President Killian was asked to acquaint Council members with significant events which had taken place at M.I.T. since the last Council meeting. Dr. Killian opened his remarks by stressing the active summer programs which had taken place at M.I.T. Under a grant from the Westinghouse Educational Foundation, 50 high-school teachers of science were enabled to take science refresher courses at M.I.T. during the summer. The student-managed Foreign Student Summer Program went into its second year by providing opportunity for 80 foreign students (mostly from Western Europe) to attend summer courses at the Institute at minimum cost. Two symposia, one on mathematical computation methods and the other on food technology, were organized for the benefit of engineers in industry and had been enthusiastically attended. Many members of the Faculty visited Europe and remote portions of the United States on business or pleasure trips. President Killian also reported that the supersonic wind tunnel was virtually completed and that inauguration ceremonies would probably be held in November. New construction, which is progressing rapidly, at the Institute includes the hydrodynamics towing tank, the 12-million electron volt electrostatic generator, and the Charles Hayden Memorial Library.

Sherlock for Insulin

DEVELOPMENT at M.I.T. of a quick and accurate test for insulin and a method which promises an important increase in production of this life-saving drug, both based on a process by which molecules of insulin can be made to virtually purify themselves has been announced by President Killian.

The process, developed by David F. Waugh, Associate Professor of Physical Biology at the Institute, in co-operation with the research laboratories of Armour and Company, constitutes the first known chemical test for active insulin. There is evidence, Dr. Waugh believes, that once we find out enough about them, we may be able to apply the same procedures of self-purification to other proteins.

The research which led Dr. Waugh to these advances began with a fundamental study of the structure of protein molecules, essential constituents of every living cell known to man. Dr. Waugh discovered that under certain conditions insulin molecules display a Scotch-like clannishness; they associate with each other to form tiny threadlike particles called fibrils. Such a fibril, invisible except with the aid of the electron microscope, may include up to 80,000 indi-

(*Concluded on page 110*)

A stitch in time

An ounce of prevention

Forewarned is forearmed

Even though these old proverbs may seem to have become worn thin and threadbare through frequent use, the truths they portray are just as fresh and equally as valid today, as the first day these gems of wisdom were uttered.

For all those dependent upon efficient operation of plant, machinery and boilers, there is another proverb — a little younger perhaps — but equally potent:

> "*A planned shut-down is usually far less costly than a forced shut-down.*"

Fire and explosion damage to buildings, boiler and machinery failures, personal injury, object damage, and accidental loss have been kept to a minimum and in many cases entirely *prevented* through our periodic inspection service which is only a part of our insurance protection.

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(*Concluded from page* 108)

vidual molecules. In forming these fibrils, Dr. Waugh found, insulin molecules are highly selective. No other compound is permitted in this close association; impurities are locked out. Once formed, these fibrils of virtually pure insulin join with other similar threads to make weblike tangles like loose piles of jackstraws.

The production of insulin today requires a number of purification steps applied to an initial extract. At each of these steps accurate information about the amount of active insulin present is desirable. All of the time-consuming, tedious, and complex tests on animals — procedures requiring elaborate laboratory facilities — are replaced by Dr. Waugh's simple chemical test for the presence of insulin.

MYTHS OF AVIATION

(*Concluded from page* 92)

the ground. Daniel J. Maloney, the pilot, was killed. Some years later, in 1911, in a similar accident, Montgomery himself was killed.

Many explanations of the accidents were offered, but the Wrights, when they heard about the design of the Montgomery machine, formed an opinion which they passed on to their friend, Chanute, and which was doubtless correct. Montgomery had placed his wings one in front of the other, with the rear wing set at a larger angle of incidence than the forward one. That was especially dangerous on a cambered wing, because when the wings are cambered, the center of pressure, at most of the flying angles, travels rearward with decrease of angle, instead of forward, as supposed by Montgomery. The Wrights told Chanute, before the first accident occurred, that if any machine like Montgomery's were pointed steeply down, to attain a high speed and a small angle of attack, the machine would dive at a steeper and steeper angle until it would finally turn over on its back. The horizontal rudder (elevator) on the Montgomery machine was too small and too close to the planes to have enough turning force to bring the machine out of the dive. It was not surprising that both men who operated the machine were killed; the wonder was that a fatal accident did not occur at the first trial.

Montgomery's chief title to fame is the early date at which he developed enthusiasm for gliding.

GIANT FOLLOWS GIANT

(*Concluded from page* 97)

kind of extreme-distance work, there will be no duplication. The sky is so vast and the astronomer has as yet explored so tiny a part of it, that many lifetimes of research with both instruments will not reveal all that is hidden. The only regret is that cosmic studies in the Southern Hemisphere must continue at a slow rate because of inaccessibility and the prohibitive expense of establishing large observatories at the remote ends of the earth.

HE BRINGS AN ARMFUL OF COURTESY, TOO

The man who comes to install or repair your telephone brings something more to your home than equipment, tools and efficiency.

He brings courtesy and consideration and a genuine desire to please. He treats your home and the things in it as carefully as though they were his own—cleans up and puts everything back in place when he's finished.

He brings along the realization that he is the representative of thousands of telephone men and women you may never see—all working together to give you friendly, constantly improving telephone service at reasonable cost.

BELL TELEPHONE SYSTEM

THE SATELLITE ROCKET

(*Continued from page 95*)

ing a smaller rocket of the *WAC-Corporal* type as its pay load. The smaller rocket lifted out of the larger one just before the fuel supply of the larger one was exhausted. Then it added its own velocity of one half mile per second to the one mile per second of the *V-2*. The resultant velocity of one and a half miles per second carried the *WAC-Corporal* to an altitude of 250 miles, whereas the *V-2*, minus power and also minus pay load, rose only to about 100 miles. This method of using a small rocket as a pay load for a larger rocket is called the "step principle" and it is worth noting that a three-step rocket, with solid fuels, the *Rheinbote* or "Messenger from the Rhine," was used by the Germans during the last phases of World War II as a long-range weapon against Antwerp. So far no three-step rocket using liquid fuels has been built, but one may assume that the techniques worked out for the two-step system of the *V-2*-launched *WAC-Corporal* will work for a three-step rocket too.

All this leads to the conclusion that a three-step rocket will probably be needed to establish a small artificial satellite. On the basis of two assumptions, it is possible to calculate the behavior of a required three-step rocket. One of these is that the mass ratio of each of the three steps was the same, namely 3.5 to 1 which would result in a theoretical velocity of five fourths of the exhaust velocity. The other assumption is that the exhaust velocity was assumed to be 7,700 feet per second or about 10 per cent higher than that of the *V-2* motor. This means that each step, independently, would attain a theoretical velocity of 9,625 feet per second. The difference between this theoretical value and the probable actual performance was taken into account by making appropriate reductions* as follows:

Step I.

Theoretical velocity 9,625 ft/sec., minus 20 per cent reduction = 7,700 ft/sec.

Step II.

Theoretical velocity 9,625 ft/sec., minus 10 per cent reduction = 8,660 ft/sec.

Sum of probable actual velocities of Steps I and II = 16,360 ft/sec.

Step III.

Theoretical velocity 9,625 ft/sec., no reduction = 9,625 ft/sec.

Sum of probable actual velocities = 25,985 ft/sec.

Rounded off, this figure may be taken to be 26,000 feet per second. The velocity actually required in that orbit would be 24,300 feet per second, so that there is

(*Continued on page 114*)

* The reductions for the different steps are, of course, guesses, based on *V-2* performance. In this example the first step is given the highest reduction because it rises essentially vertically and has to overcome air resistance. Step III is without reduction because it would accelerate essentially horizontally.

(Model 901) PORTABLE TEST INSTRUMENTS available in DC, Model 901—and AC, Model 904, single and multiple ranges of wide coverage. Excellent scale readability and shielding. Accuracy within ½ of 1%.

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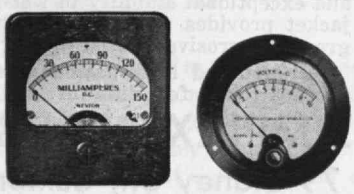

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(Model 697) VOLT-OHM MILLIAMMETER one of a line of pocket-size meters, Model 697 combines a selection of AC and DC voltage, DC current, and resistance ranges. Ideal for maintenance testing and many inspection requirements.

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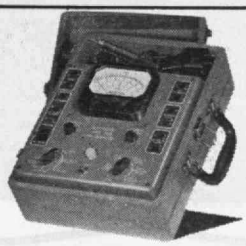
(Model 779, Type 1) SUPER-SENSITIVE ANALYZER small, light, compact, 26 range Volt-Ohm-Milliammeter with 5 DC voltage ranges, sensitivity of 1000 or 20,000 ohms per volt. AC temperature compensated. Self-contained power supply. Ideal for many production and test requirements.



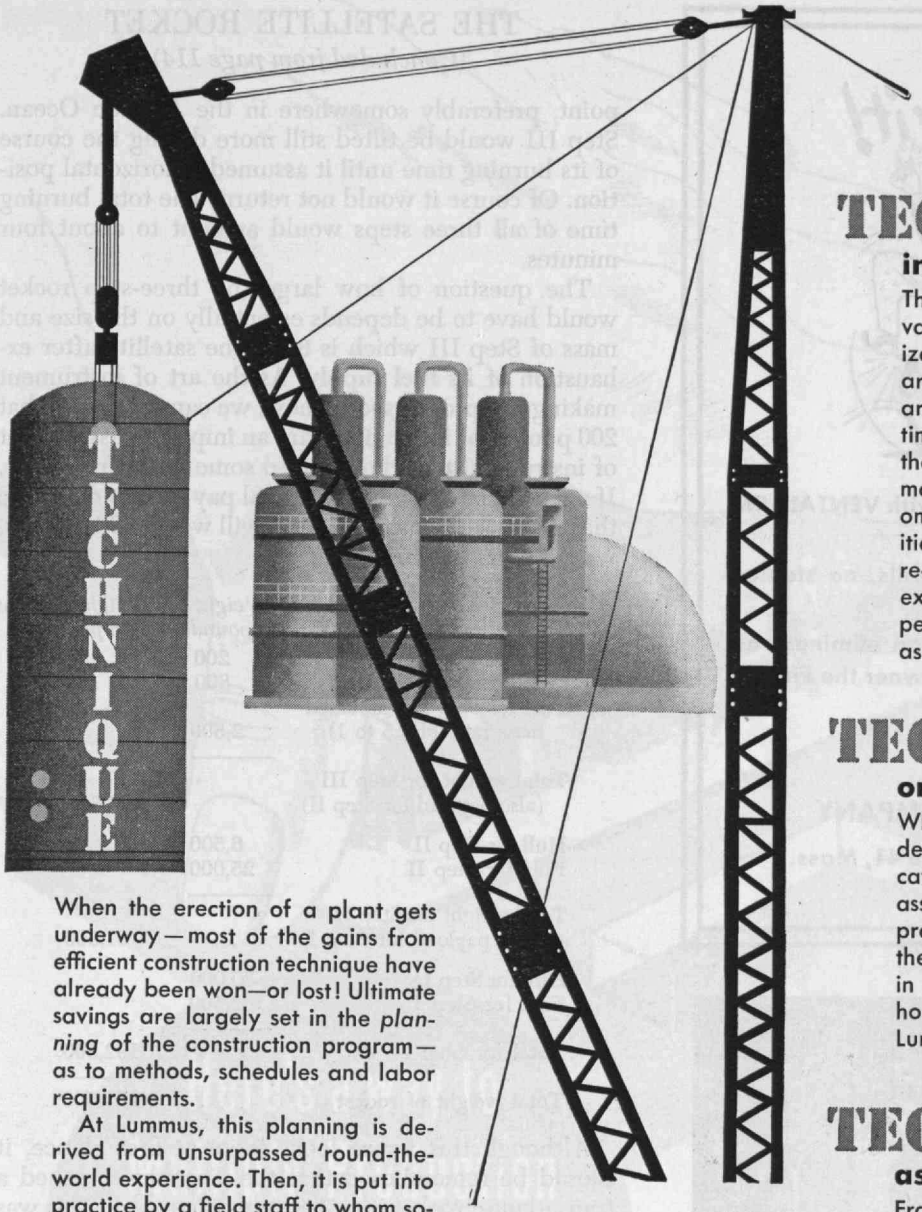
(Model 769) ELECTRONIC ANALYZER incorporating a conventional Volt-Ohm-Milliammeter with self-contained power source—a high-impedance electronic Volt-Ohmmeter using 115 volt, 60 cycle power—a stable, probe-type, Vacuum Tube Voltmeter, for use to 300 megacycles.

(*Continued from page 112*)

still a margin of over 1,000 feet per second. If such an excess occurred in the flight of a rocket, the only effect would be to increase slightly the orbital radius of the satellite rocket.

The over-all performance would be about as shown in the diagram on page 94. The whole three-step rocket would be launched vertically and during the burning period of Step I the rocket would be given only a very slight tilt *to the east,* just enough to prevent Step I from falling on the launching site when it falls to ground. The fuel supply of Step I would be exhausted at an altitude of about 30 miles, a few miles east of take-off point. Step II would be ignited a second or two earlier and lift out of Step I. Step I would continue to rise, but far slower than Step II which is accelerating. It would reach a total altitude of about 120 miles and would strike the ground between 30 and 40 miles east of the take-off point. Step II, in the meantime, would have been tilted to an angle of about 45 degrees during the course of its burning time and Step III would lift out of it just before the fuel supply of Step II is exhausted. Step II would continue on kinetic energy only along a typical long-range trajectory and attain a maximum altitude of about 230 miles. Its impact point would be some 900 miles east of take-off

(*Concluded on page 116*)



When the erection of a plant gets underway — most of the gains from efficient construction technique have already been won—or lost! Ultimate savings are largely set in the *planning* of the construction program—as to methods, schedules and labor requirements.

At Lummus, this planning is derived from unsurpassed 'round-the-world experience. Then, it is put into practice by a field staff to whom so-called "unpredictables" are old and familiar.

Sound technique, as Lummus applies it, means a sound night's sleep for those we serve who shoulder the responsibility.

TECHNIQUE
in planning

The full effect of detailed planning in advance of actual construction has been realized in foreign work where local facilities are at a minimum. It called for scheduled arrival of tools and materials, periodic estimates of manpower requirements and the preplanning of specific procedures for materials handling and heavy lifts. Economy in requirements for construction facilities, tools and equipment by preplanned re-use at various construction stages is one example. The selection of a staff with experience permitting effective reassignment as the job progresses is another.

TECHNIQUE
on the job

What makes it possible to move a 150-ton derrick intact from one tower-erection location to another, as contrasted to disassembly and reassembly? Planning—plus practical experience of the field staff on the job! Lummus field personnel has served in some 15 foreign fields, as well as at home, and averages better than 10 years' Lummus experience.

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From an analysis of unit erection costs in which every man-hour is estimated in advance, Lummus lays the groundwork for continuing cost control. Periodic reports, detailing costs and work-progress, permit evaluation of all phases of the job from start to finish.

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NATIONAL CONSTRUCTORS ASSOCIATION — OIL STEEL CHEMICAL

designs and builds with TECHNIQUE

teamwork
perspective
economy
fulfillment
resourcefulness

THE SATELLITE ROCKET

(Concluded from page 114)

point, preferably somewhere in the Atlantic Ocean. Step III would be tilted still more during the course of its burning time until it assumed a horizontal position. Of course it would not return. The total burning time of all three steps would amount to about four minutes.

The question of how large the three-step rocket would have to be depends essentially on the size and mass of Step III which is to be the satellite after exhaustion of its fuel supply. As the art of instrument making has progressed by now, we can safely say that 200 pounds of instruments are an imposing assortment of instruments, all the more so some years from now. If we take this weight as the final pay load and assume that the rocket which houses it will weigh 800 pounds, we get the following table:

Item	*Weight (in pounds)*	*Weight of Steps (in pounds)*
Pay load	200	
Empty hull for Step III	800	
Fuel for Step III (assumed mass ratio of 3.5 to 1)	2,500	
Total weight for Step III (also payload for Step II)		3,500
Hull for Step II	6,500	
Fuel for Step II	25,000	
Total weight for Step II (also payload for Step I)		31,500
Hull for Step I	30,000	
Fuel for Step I	162,500	
Total for Step I		192,500
Total weight of rocket		227,500

Although this figure looks large at first glance, it should be remembered that the Germans planned a transatlantic rocket, the *A-9 + A-10* project. This was to have a take-off weight of 85 metric tons. It was not actually built, but evidently the designers felt sure that it could be done. A three-step rocket with a take-off weight of 103 metric tons seems to lie within reach of present-day rocket engineering. And the establishment of an orbital rocket is something which certainly is worth some effort.

Here's a way to Multiply Production *without* permanently increasing capacity

Before you incur heavy fixed charges for a permanent increase in your production capacity, we suggest you investigate the Taft-Peirce Contract Service Division.

Figuratively speaking, you can drop this complete organization—capable of handling all your production overloads—right into your manufacturing picture. Immediately any part, or all, of 1500 machine tools and 400,000 square feet of floor space will be added to your own production facilities.

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TAKE IT TO TAFT-PEIRCE

GOSSIP

(*Continued from page 91*)

Now, a mink coat in itself is a highly desirable evidence of wealth, especially a long, mink coat. Mrs. *A* could not have chosen a more dramatic way to tell everybody that she was rich, in a neighborhood where riches count. She carried out her constitutionals at about 8:00 A.M. while her less fortunate sisters were driving their husbands to catch the morning suburban trains for the big city. These women were no models of style, themselves, for the majority were still completely disheveled, hair unkempt or in curlers, and clothed in dressing gowns (hastily thrown over their bodies), jackets, or coats slipped over pajamas or nightgowns. Of course they were usually unwashed and some of them had even walked their dogs for the few minutes prior to the time that their husbands would emerge with the family cars driven from the rear of their homes. But none had flaunted mink coats or wealth at eight o'clock in the morning! In this instance, all three factors were highly propitious:

I Mrs. *A* flaunted custom and made the women realize how unattractive they themselves looked

A Great antagonism developed toward Mrs. *A* who really had no desire to hurt a soul

S The neighborhood is extremely conscious of itself, its position in society, and is very closely knit, being one of the finest residential sections in the community

A virulent round of gossip permeated the neighborhood, becoming the chief topic of conversation. It reached Mrs. *A* within 10 days when she suddenly appeared for her 8:00 A.M. constitutional the acme of haberdashery perfection. Peace returned and never again has Mrs. *A's* mink coat been mentioned, for she conformed. The neighborhood mistresses continue to look like anemic scrubwomen as they still deposit their lords at the railroad station.

No Sacrifice of Principle

When Mr. and Mrs. *C* moved with their several children to the town of *A*, they settled because they liked the house, the schools, and the beauty of the vicinity. The neighbors seemed adequate and were not an especial consideration. It was not long before representatives of various religious organizations began to extend invitations to the new family to become communicants of one or the other of the churches, clubs, and so on. One and all they left aghast; a heretic was in their midst!

Finally an ultimatum was issued: either Mr. and Mrs. *C* join one of the recognized organizations or no child would be permitted to play with the children of the *C's!* The *C* children had not been brought up to revere the religious precepts inculcated into the facile young minds of the youth of *A*. Such heresy disturbed the very foundations of the forces that tied the people of *A*, one to the other.

The situation had its serious moments when the *C* children found themselves ostracized in the street. Doors were rudely slammed before their faces and friends turned away. For a time, the outlook was indeed precarious, until Mr. *C* resolved the problem

without any drastic revision of principles. He built a small playground behind his own house. It became a mecca for all the youngsters in the vicinity, the parents notwithstanding.

Although the forces of gossip were indeed powerful they were ineffective because *C* neither experienced any solidarity with the ties that bound ($S = 0$) *A*, nor did he reciprocate their feeling of personal insecurity ($A = 0$) although the neighbors obviously felt great antagonism toward the *C* family.

Gossip Triumphs

However, in the case of Mr. and Mrs. *D*, friends of the family *C*, the forces of gossip working in the same way, accomplished their end. Mr. *D*, a highly trained man ran for an elective office. He was defeated because tongues worked overtime against him. He was not a communicant of any church!

Immediately upon his defeat, he and his wife with their children joined a church. Mr. *D* became very active in its secular affairs, while Mrs. *D* contributed her time to endeavors wherein her talents were best suited. The *D* children entered Sunday school and everything became peaceful for *A* and the *D's*.

In this instance, the family *D* succumbed before the gossip since they desired to be part of the community, feeling great insecurity without it. They did not want a feeling of antagonism.

A Case of Gossip Failure

There is no group of men in public service who suffer more from personal insecurity than the members of a police department. They are subject to attack and criticism from their officers and from the public, and especially are they vulnerable to the machinations of politicians. As a group they have the solidarity of the uniform, but they experience great antagonism toward anyone of whom they might be suspicious of carrying tales. In a sense, theirs is an unenviable lot.

World War II made many of the patrolmen, who were not accepted under the Selective Service Act, unhappy and nervous men, for their meager forces were augmented by civilian wardens, auxiliary policemen, and so on. The regular policemen hated them, not only because they feared for their own jobs, but also because of the stories they dreaded the civilian police might carry back.

G was one auxiliary policeman who became the brunt of much antagonism because he was conscientious. Gossip had him writing letters to the chief, bearing fancied stories, reporting men who were derelict in their duties. The regular patrolmen were insulting during their frequent contacts with him, and, in general, tried to make their relationships as humanly unpleasant as possible.

The policemen were frightened, although as events in later years proved to their satisfaction, completely without justification or foundation. Albeit they were jealous and suspicious of each other, the policemen still recognized themselves as a distinct group with a peculiar and strained sort of feeling of deep solidarity. The antagonism toward *G* was extremely intense.

(*Continued on page 120*)

GOSSIP

(*Continued from page 119*)

So far as *G* was concerned, since his conscience was clear and he understood the inner forces that motivated the sentiments of resentment against him, the attacks amused rather than disturbed him. Much to the chagrin of many in the department, *G* neither diminished his intense interest in police work, nor severed his connections with the department so long as the war emergency lasted. He may have believed, as did many another patriotic citizen, that a period of crisis is hardly the time to leave a post of responsibility, even though continuance may be unpleasant.

In this instance, the forces of gossip failed to be efficacious because, notwithstanding *G's* desire to be part of the police group, he suffered naught from their antagonism. Since *G* was a civilian, he could not be too seriously affected by any sense of personal insecurity through any antagonism displayed against him. It should be mentioned that had *G* been employed in any other branch of the city's administration, his independence could not have been maintained upon so high a level. Instructions would have gone down the line, passing the stage of gossip to the more active form of social control, command. Since, in fact, *G* was gainfully employed outside the community of *X*, there was little else that could be marshaled against him other than gossip. It failed its point.

Parental Pride

Consider now the case of the family of Mr. and Mrs. *I*. All parents love and admire their children, and enjoy recounting their exploits and accomplishments. However, Mr. and Mrs. *I* indulge in this pastime to the virtual monopoly of all other intellectual pursuits. In the presence of the *I's* all conversation ceases, for it becomes necessary to listen as they expound upon the virtues, brilliance, pulchritude, and erudition of their offspring.

It is not that the *I's* are dull people – far from it. In fact, in their own right they are bright, capable, and gifted. But, listening to them extol the virtues of their children, always with invidious comparison, gives their audience a terrible sense of inferiority and insecurity. So often, friends leaving the presence of the *I's* will say, "What have we got in comparison?"

The *I's* are rarely invited to visit their neighbors. Apparently, the gossip has not reached them as yet. Someday it will.

(*Continued on page 122*)

GOSSIP

(*Continued from page 120*)

Gossip Can Be a Terrible Thing

J is active in politics and civic affairs in the city of *X*, and therefore has to be extremely careful of his reputation. In a small community a whisper of irregularity is sufficient to destroy a man's political life. Some time ago *J* participated in an automobile accident. Facetiously, one of his friends remarked in the presence of others, that he wondered whether *J* was sober when the accident occurred. Immediately, like a fighting cock, *J* flared up to defend his reputation. Then he took his friend aside and begged him never to say anything like that again, even in jest. As he expressed it, "Gossip can be a terrible thing." *J* dreaded the potential force of gossip that might have started.

These examples are, by no means, the only ones which could be cited to illustrate the manner in which gossip works its ways in our daily living. Nevertheless, they have been selected to indicate the manner in which gossip depends upon the interdependent relations of personal insecurity, antagonism, and solidarity as given in the equation in this article; they have also been selected to show how these factors have influenced personal behavior in certain instances.

*International Audience**

For the most part, the type of gossip with which this article has dealt has been of the type which is conducted on a local scale, and its effectiveness has been dependent upon more or less personal contact between the dissenter and the gossiper. But we may note another kind of gossip, which has reached much larger geographical extent in recent years, and in which the personal contact between protagonist and dissenter is extended to a vast audience through the technical facilities which modern journalism and communication place at our disposal. This is the sly innuendo, the facetious remark, and particularly the partial, misleading, and incomplete truths uttered at interviews, press conferences, and investigations of one kind or another. Here the purpose of contact with news-dispensing agencies is obviously to exercise social control.

In earlier generations, incomplete, inferential, and erroneous or deceptive statements could, perhaps, be passed off without attracting more than local attention. But with the widespread rise of news broadcasts, the interpretation of news by radio commentators, the editorial comment by columnists who often have strong personal feelings, and the universal employment of newspaper headlines, frequently of the "scare" type, such gossipy scraps of incomplete information or misinformation receive widespread circulation and create an impact on the mass mind which is usually all out of proportion to their intrinsic significance. They are not thoroughly analyzed, except possibly in the small print which, if read, follows the headlines which have already created a preconceived notion.

(*Continued on page 124*)

* The remaining portion of this article, included as the editor's comment on a problem of current importance, is appended to Mr. Joffe's article with the permission of the author. — Ed.

GOSSIP

(*Continued from page 122*)

This phase of gossip is national, or even international, in scope and is employed with great effectiveness against public servants or leaders in industrial, educational, or religious affairs. It is employed by those who feel themselves insecure and who are antagonistic toward the dissenter, and by those who desire to increase their solidarity within the group. It has even been employed by those whose primary aim has been to direct attention to themselves without regard to the rights of others. In any case, the motives are the same as those underlying the gossip going on in the local drugstore or the corner beauty shop.

The effects of such nation-wide gossip are far more serious and damaging to our welfare than when conducted on a neighborhood scale, however. Frequently, as in the case of comments made by investigating bodies, remarks once broadcast tend to take on the attributes of character assassination, and those attacked have no adequate means of defense or rebuttal. Even when such opportunity is generously provided, a certain amount of "social control," which can never be completely undone, no matter what the merits of the case may be, has been achieved. The harm is greatest in those increasingly numerous cases in which there may be perfectly just and honest differences of opinion on matters of such a technical nature that the layman is in no position to judge the merits of the facts on the two sides of the question at issue.

The seriousness and viciousness of such nation-wide gossip becomes readily apparent when it is realized that it serves as a strong deterrent for many qualified persons to accept positions of public service where their training and experience might be invaluable. President Truman, and others in public life, have directed attention to the difficulty of obtaining eminent men for public service. Many of those who enter public service make very real sacrifices in giving up their private business practices, and it would not be difficult to compile a long list of those who return to their private affairs at the earliest opportunity. The position of such public benefactors is an understandable one, however. So long as the Constitution guarantees the right to the pursuit of happiness, it would be strange indeed were we to expect eminent persons to volunteer enthusiastically for positions in which they may be, at any time, subject to the insidious maltreatment of gossip.

(*Concluded on page 126*)

GOSSIP

(*Concluded from page 124*)

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Manager Electrical Department
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(*Graduate Training Course—1904*)

R. S. FLESHIEM

WHEN YOU GET into daily working contact with an industry, you may find it offers specialized opportunites that you hadn't known about before. That's why it's not always possible—or wise—to pick *your* final spot in industry until you've had some all around first-hand experience.

I want to suggest a good way to *get* a close-up of the industries that appeal to you.

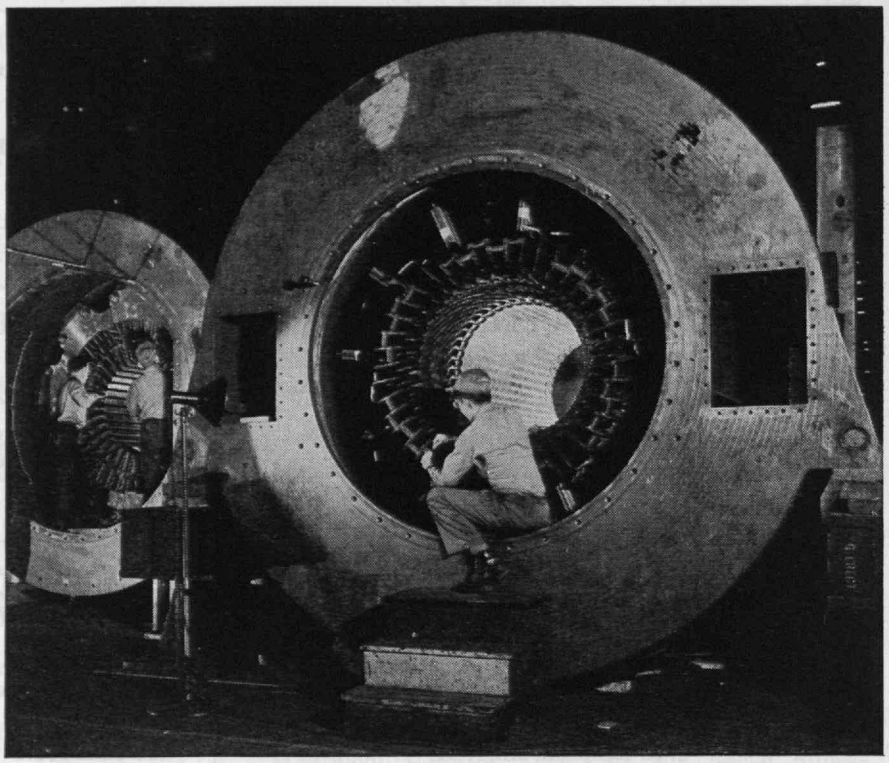
Naturally, I can talk with most assurance about the electric power industry. But the same principles apply to others.

When I got my engineering degree from the University of Michigan, the electric power industry was a fast-growing youngster. I decided to go to Allis-Chalmers, where I joined the company's first Graduate Training Course in 1904. I was sent to Cincinnati and started in the old Bullock Electric Mfg. Co. plant that Allis-Chalmers had purchased that same year. Bullock, incidentally, started in 1884—one of the real old-timers in the electric industry. It was the start of the present Allis-Chalmers Electrical Department.

Opportunities Are Increasing

The industry was growing fast at the turn of the century, but it's growing even faster now. Opportunities were never greater—or more varied.

Studying power and capacity factors in ore crushing, in Allis-Chalmers' complete basic industries laboratory. Camera-recorded data will be applied to commercial mining operations.



Inside View of a hydrogen-cooled steam-turbine generator. A-C Graduate Training Course students may follow important electric power equipment from blueprint to installation.

Today we have Graduate Training Course engineers applying their ability and training to the problems of machine design—research and development—manufacturing and production—sales—application engineering. Here we're working with electric power generation, control and utilization—with advanced industrial uses of electronics—with research in D. C. transmission. We're in intimate touch with the electric power industries—with transportation—with steel, metal working and other big power users. And I know that the field is just as broad in the other major industry departments here at Allis-Chalmers.

What Industry Interests You?

I firmly believe that Graduate Training Course engineers have a unique opportunity at Allis-Chalmers. They have the opportunity here to explore thoroughly not one, but many basic industries if they choose. This company produces the world's widest range of major industrial equipment, and every department is open to the graduate engineer. That includes electric power, mining and ore reduction, cement making, public works, steam turbines, pulp and wood processing. It also includes the full range of activities within each industry: design, manufacturing, sales, research, application, advertising.

Graduate students help plan their own courses at Allis-Chalmers, and they move around a good deal. It's possible for a man to come here with the idea of designing electrical equipment—later become interested in manufacturing—and finally find his greatest satisfaction and success in sales work. Men move from department to department, getting a practical working knowledge of each. And—the departments get to know the men. Opportunities present themselves according to ability.

At the completion of the Graduate Training Course, you've had a close-up of many industries. You're ready to take your place in the work of your choice.

Write for details of the Allis-Chalmers Graduate Training Course—requirements, salary, advantages.

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Alumni AND Officers IN THE News

Platform Pacers

MURRAY P. HORWOOD'16 presided at a breakfast meeting attended by Alumni on October 26 during meetings of the American Public Health Association held in New York. Dr. Horwood outlined current activities at the Institute and called upon ROLF ELIASSEN'32 to describe the recent developments in the Sanitary Engineering program at M.I.T. Among those present were: CHARLES-EDWARD A. WINSLOW'98, JOHN L., and Mrs. PORTER'00, JOHN F. NORTON'06, ANDREW F. ALLEN'12, FRANK J. OSBORNE'12, M. WARREN COWLES'15, JAMES A. TOBEY'15, CLAIR E. TURNER'17, LOUISE PEIRCE HORWOOD'19, JAMES WALLACE'22, MILTON E. PARKER'23, Mrs. CLAIR E. TURNER'26, VIVIAN V. DRENKHAHN'33, SAMUEL H. HOPPER'33, B. RUSSELL FRANKLIN'34, ANNA CHESKIS GELMAN'34, EDGAR J. STAFF'35, HOWARD E. LIND'37, LOUISA J. ESKRIDGE'39, ELIZABETH S. AVERY'40, LEON P. EISMAN'40, THEDA L. WATERMAN'40, TRENT S. RUSSELL'42, FRANCES L. KRAFT'43, SOLOMON S. LIFSON'43, BERYL J. ROBERTS'43, and WARREN H. SOUTHWORTH'44.

JOHN E. BURCHARD'23 gave a paper entitled, "Out of Olde Feldes," which was the principal address at the dedication of the new Fondren Library at the Rice Institute, Houston, Texas, on November 4.

E. RALPH ROWZEE'30 presented the second biennial lecture of the Arthur B. Purvis Memorial series on October 6 in Montreal. The subject of the lecture, as announced by the Canadian section of the Society of Chemical Industry, was entitled, "Sarnia – The Birthplace of Canada's Petrochemical Industry."

Proudly Presented

FRANK B. JEWETT'03 has been named to receive the 1950 medal of the Industrial Research Institute, Inc., which is annually awarded for "outstanding accomplishment in leadership or management of industrial research which contributes broadly to the development of industry or public welfare." Presentation of the medal will be made at a dinner to be held in April by the Industrial Research Institute.

J. HOWARD PEW'03 was the recipient of the Gold Medal for Distinguished Achievement awarded by the American Petroleum Institute on November 9. Previous medals have been awarded to Charles F. Kettering, William Burton and Henry Ford. Mr. Pew retired as president of the Sun Oil Company in 1947 but continues as a director of the company.

ALDEN D. NUTE'17 was the first-prize winner in a nationwide contest sponsored by the American Association of Textile Chemists and Colorists. The prize was awarded in October for a scientific study, "The Properties and Applications of Resin Forming Acid Colloids."

ALLAN T. GWATHMEY'28 and Henry Leidheiser won a $500 prize on September 28 from the Oak Ridge Institute of Nuclear Studies for a paper entitled, "The Catalytic Reaction of Hydrogen and Oxygen on Plane Faces of a Single Crystal Copper."

MARCUS A. GROSSMANN'11 was presented with the Sauveur Achievement Award by the American Society for Metals at their annual dinner held on October 20. Presentation of the Henry Marion Howe Medal to MORRIS COHEN'33, BENJAMIN L. AVERBACH'47 and G. S. Fletcher was also made by the Society at that time.

Printed Pages

GEORGE C. KENNEY'11 is the author of a book entitled, *General Kenney Reports.* Duell, Sloan and Pearce are the publishers.

JAMES A. TOBEY'15 penned the following articles, all of which appeared in the October, 1949, issues of the various magazines mentioned: "Is It Legal To Pay Convention Expenses of Public Officials?" *The American City;* "What Science Knows About Gray Hair," *Your Life;* "Your Daily Need for Calcium," *Life and Health;* and "Mal de la Danse," *Digeste Catholique.*

CHARLES S. DRAPER'26 and YAO T. LI '38 contributed the paper, "A New High-Performance Engine Indicator of the Strain-Gage Type," to the October, 1949, issue of the *Journal of the Aeronautical Sciences.*

IRA H. ABBOTT'29, in collaboration with Albert E. vonDoenhoff, wrote *Theory of Wing Sections,* a book published in November, 1949, by the McGraw-Hill Book Company, Inc.

ROBERT E. HAGE'40 and COURTLAND D. PERKINS'41 are the coauthors of *Airplane Performance, Stability and Control,* published in October, 1949, by John Wiley and Sons, Inc.

PATRICK M. HURLEY'40 contributed the article, "Time-Telling Minerals – Uranium and Thorium" to the September, 1949, issue of *Research Reviews,* Office of Naval Research.

RICHARD S. BEAR, staff, and ORVIL E. A. BOLDUAN, former staff, are the authors of the paper, "Effective Use of Collimating Apertures in Small-Angle X-Ray Diffraction Cameras," published in the October, 1949, issue of the *Journal of Applied Physics.*

FRANCIS BITTER, staff, is the author of "The Optical Detection of Radiofrequency Resonance" which appeared in the September 15, 1949, issue of *The Physical Review.*

BRUNO B. ROSSI, staff, and H. H. Staub collaborated on *Ionization Chambers and Counters,* Volume 2 in the "National Nuclear Energy Series," Los Alamos Project, Division V. McGraw-Hill Book Company, Inc.

PAULINE TOMPKINS, staff, has written a book entitled, *American-Russian Relations in the Far East,* which was published in November, 1949, by the Macmillan Company.

Progressive Promotions

CLAYTON D. GROVER'22 was elected a director of the Whitehead Metal Products Company in September.

EDWARD J. MCGREW, JR.,'26 was one of four outstanding experts in the field of architecture and engineering to be appointed to the New York State Building Code Commission by Governor Dewey. Colonel McGrew has been appointed for a 10-year term and was chosen as chairman of the commission.

MALCOM G. DAVIS'25 was elected a trustee of the New York Savings Bank in October.

Obituary

JOHN W. ADAMS'87, September 29.
EUGENE S. DANIELL'88, in May, 1949.
JOHN W. LINZEE'88, February 20.
GEORGE D. MOORE'88, December 12, 1947.*
FRANCIS M. ADAMS'94, July 25.
JOHN W. CHAPMAN'94, October 28.
DAVID D. CASSIDY'97, October 6.
FREDERICK L. EDMANDS'97, October 27.
KARL BURROUGHS'00, August 12.*
DANIEL S. JOHNSON'00, September 9.*
CHARLES L. B. ANDERSON'01, September 29.
THEODORE F. LANGE'01, September 8.*
ANDREW M. FAIRLIE'03, June 17.*
HENRY H. FALES'03, June 3.*
ADDISON F. HOLMES'04, November 5.
JASON L. MERRILL'05, August 7.*
LEON G. MORRILL'05, October 10.*
AARON L. MYERS'11, September 19.
EDWARD D. VAN TASSEL, JR.,'11, October 1.*
CHARLES L. GABRIEL'12, September 24.*
HERBERT H. STEVENS'12, November 8, 1948.*
THOMAS A. DUTCHER'13, June 5, 1948.*
WILLIAM J. MOONEY'13, in June, 1949.*
W. JOSEPH ROONEY'15, August 31.*
BERNARD O. TYLER'16, January 15.
REGINALD K. FESSENDEN'17, date unknown.*
HENRY G. PARKER'17, March 29.*
CHARLES E. DELONG'18, September 14.*
HENRY R. OSTER'21, August 1.
ALBERT C. SCHWEIZER'23, October 10.
FRANK W. SMALLEY'24, August 24.*
WALTER C. WURDEMAN'28, September 17.
LAWRENCE P. SPENCER'29, June 28, 1948.
THEODORE B. TAYLOR, JR.,'29, October 17.
ARMAND L. CLOUTIER'30, September 10.*
SANFORD A. MOSS, JR.,'30, June 17.*
ROBERT D. CONRAD'32, July 26.
LESLIE A. SKINNER'34, May 15.*
ROGER V. PARLETT, JR.,'48, May 5, 1948.

* *Mentioned in class notes.*

News from the Clubs and Classes

CLUB NOTES

M.I.T. Club of Central Florida

Notice to all members: Our winter dinner meeting has been scheduled for the evening of December 5 in Tampa at the University Club. Elections will be held and as a special attraction, Professor Chalmers, Assistant Director of Admissions and Advisor to Foreign Students at the Institute will be with us. Notices were mailed on November 15; however, please keep the date in mind.

Alumni visitors to our fair State who will be in Tampa on December 5 are cordially invited. – Benjamin L. Skinner'42, *Secretary,* Post Office Box 157, Dunedin, Fla.

M.I.T. Club of Chicago

Friday, September 16, was M.I.T. Night at the Chicago Railroad Fair. It was a family party, with wives and children, relatives and friends attending. After dinner, the members and guests were "on their own" and strolled over the fairgrounds in small groups taking in the many interesting exhibits. Later in the evening, the groups gathered in the amphitheater and enjoyed the interesting and worthwhile "Wheels A-Rolling" pageant. Over 50 groups of members and friends enjoyed this M.I.T. Night at the fair, with members attending from Geneva, Ill., and Indianapolis, Ind. The oldest alumnus present was Sam Smetters'96.

A large group of members of the Club are looking forward enthusiastically to the coming week-end outing at French Lick, Ind. This outing is scheduled for the week end of October 28 through October 30. According to President John Barriger, to whom credit must go for the planning and working out of all arrangements, the Monon's best streamlined car equipment will be supplied and special entertainment will be arranged and provided at French Lick. There will be golf, riding, shooting and other outdoor sports available for the members and their guests. To date, nearly 60 individuals have indicated their intention to take part in this most appealing outing.

Congratulations to W. A. Brown, Jr., '31, II, on the announcement of his promotion to vice-president and general manager of the Liquid Carbonic Corporation. In this new capacity, Bill will operate out of the company's Chicago main office on South Kedzie Avenue. A sincere welcome from the Club.

We regretfully announce the death of Vincent A. Dolan'48, ensign, U.S.N.R. At the time Vincent was taken ill, he was electronics officer aboard the U.S.S. *Fresno.* He died at the Naval Hospital, St. Albans, Long Island, N.Y., on July 26, after an operation for the removal of a brain tumor. – Benjamin H. Sherman '19, *Secretary,* The Firm of Charles W. Hills, 53 West Jackson Boulevard, Chicago 4, Ill.

M.I.T. Association of Cleveland

The 1949–1950 year has started in a grand way with the Cleveland Alumni playing host at a dinner at the Union Club on October 19 to Alfred P. Sloan, Jr.,'95, B. Edwin Hutchinson'09, George R. Harrison, Dean of Science at the Institute, a large delegation from Akron headed by P. W. Litchfield'96, and a number of the industrialists, financiers, and other leaders of Cleveland. The dinner keynoted this region's part in the drive to raise considerable funds for the Financing Development Program. From comments made, this dinner was one of which we can all be proud. It is certainly rare to have an opportunity to spend an evening with the calibre of guests we had in attendance. Most of these will have a memory for many years to come. Roscoe H. Smith'23 was the chairman of the dinner, and he is also leading Cleveland's part in the fund-raising campaign. There are not sufficient words to give proper credit to the manner in which Doc prepared and conducted the dinner. Technology received plaudits for its admirable handling of the convocation, but our dinner had an equally well-prepared program under Doc's leadership.

The executive committee of the Association had re-elected November 16 for our first regular alumni meeting. The details of that program lost significance when compared to one unanimous decision to have wives attend the first meeting. There have been several such mixed meetings in the past and each has been more successful than the last. There has been more understanding in the families of local M.I.T. men as a result of this type of meeting. Each M.I.T. club would do well to try a mixed meeting. – G. Richard Young'37, *Secretary,* The Weatherhead Company, 300 East 131st Street, Cleveland, Ohio.

M.I.T. Club of Milwaukee

Our first 1949 fall meeting of the Club was a dinner meeting held on September 21 at the University Club with such regulars present as: M. P. Allen'13, W. W. Bonns'99, Frank Briber'43, Phil Cristal '17, Frank Hamilton'07, Bill Mark'43, Pat Miller, Stuart Westerfeld'31 and Bruno Werra'32. In addition, we had some brand new members, such as Robert Arrison'45, D. W. Hoffman'47, A. E. Jakel'44 and H. L. Stiles'25, who were welcomed by our new Club President, Harold Koch'22. After introducing the Club's new officers and directors, Harold Koch presented our guest speaker, Julian J. Eberle of the Milwaukee *Journal,* who spoke on "Color Processes in Newspaper Work." Following this, Harold Howe of Chicago, associated with the company assisting M.I.T. in its Financing Development Program, briefly outlined the part we can play in this program immediately, and in the months to come. – Emerson J. Van Patten'24, *Secretary,* 6160 North Kent Avenue, Whitefish Bay, Wis.

The M.I.T. Club of New York

Every day a group of 10 or 12 Alumni gather for luncheon at the M.I.T. table at the Architectural League, 115 East 40th Street. Many new faces are to be seen, as visitors to the city and New Yorkers mix and get acquainted. Jim Nealey'11, our placement chairman, usually is a member of the luncheon group on Mondays, Wednesdays and Fridays and we all appreciate the time he is giving Technology Alumni.

The Steak-Stein Dinner in the banquet room on top of Rupperts Brewery on October 5 was the biggest such affair in history! Approximately 200 Alumni found their way to the big Third Avenue Brewery and failed in the attempt to reduce its inventory problem. President Sax Fletcher'18 introduced Ike Geiger, Director of Athletics, and Horace Ford, Treasurer of M.I.T. Both made us feel right homesick for the old Institute with their mass of statistics proving we were born 20 years too soon. Bill Kennedy'21 and Don Taylor'35 ran the dinner in expert fashion. In fact, 30 fellows showed up unexpectedly and had to take delayed delivery on the souvenir stein given to everyone attending. Bill and Don figured a 20 per cent increase over last year's turnout and found a 40 per cent increase. This is a 100 per cent error, but it is an error in the most desirable direction. On the basis of such performance, the Club wouldn't worry if Bill and Don even slipped a decimal point next time.

In September a red-blooded, live-wire *M.I.T. in New York* tabloid served notice to Alumni that the Club was going places. Bill Keplinger'24, Art Kemp'24 and Sumner Myers'48 thought, wrote and published it. Compliments are still coming in and another issue is being rumored. So great has been the impact of the newspaper that the membership committee is snowed under trying to answer membership applications and the number of new members exceeds all expectations.

Reserve January 19 for a bridge tournament. Mike Radoslovich'26 and Dale Spoor'22 are getting it lined up. Then, on February 15 a Club Smoker is scheduled for which Ray Rundlett'22 promises an outstanding program. "Get in on all the fun" is our slogan. Join us for lunch when in New York. – G. Peter Grant, Jr.,'35, *Secretary,* Grant Photo Products, Inc., 401 Broadway, New York, N.Y.

Niagara Falls M.I.T. Club

The Club held its fall meeting at the Red Coach Inn, Niagara Falls, N.Y., following an afternoon of golf at the Niagara University course. After a pleasant meal, our group was addressed by its newest member, Sam Reynolds'22, former president of the M.I.T. Club of New York, who was introduced by President Cavendish'19. We were all impressed with our duties regarding the Alumni Fund. The moving picture showing the latest changes at the Institute was shown and was certainly enjoyed by all. Plans for the next meeting were made to be held on December 9 at which time L. F. Hamilton, Professor of Chemistry at the Institute, will address us. Arnold Arch'40 is the commander of the Chemical Warfare Reserve Company in this region. He, also, addressed the group to obtain volunteer reservists for his complement. — EDWARD D. KANE'47, *Secretary*, Ontario Paper Company, Ltd., Thorold, Ontario, Canada.

M.I.T. Club of Northern New Jersey

Ahead of last year! That's the report from Treasurer MacDonald on the receipt of membership applications, and this is before the date of the first meeting which usually brings out many spur-of-the-moment Jerseyites to sample the club's hospitality. The significant increase has been among the sustaining members who, evidently, believe that a $10 lump sum for all of the club's activities is either good economics, or valuable insurance toward the continuance of a focal point for good fellowship among Institute men. Both points of view seem sound and the Club welcomes additional sustaining members.

The program committee, including Grover Paulsen'40 of Westfield, chairman, Herbert Larner'18, and Ralph Swann'41, feels the spur of this interest, and is really reaching pretty high for men to present as the feature attractions at future gatherings. Their first production was the perennial favorite, the Beer Party at the American Legion Clubhouse in East Orange on Wednesday, October 26. Preparations for more than 100 persons were made but many times that number of tall stories were given their most preposterous telling before the judges retired to award the blue ribbon.

The second function of the club year will be staged in co-operation with the M.I.T. Development Program Committee on a date during the last week in January or the first week in February. The plans will be announced in plenty of time, but it would be wise to make a tentative mark on the calendar so this one won't be missed. It will be the most significant meeting of Institute men in New Jersey in many years, and will mark the first official appearance in the club area of several men we have all been most anxious to meet here. Get your car tuned up so you can be sure to make it to the Hotel Essex House in Newark on the specified date.

Every former student of the Institute who lives in North Jersey is on our mailing list, and should have received an opportunity to indicate whether or not he wishes club notices sent to him. Our active mailing list includes those who have asked for notices plus all men who move into our territory for the first time. Please contact one of the officers or committee members with suggestions, or requests for notices, or names of new residents, and join us to meet old friends, new neighbors, and other Flat Tails.

Club officers and committees for 1949–1950 are as follows: President, Russell E. Lowe'16, Orange; Vice-President, Sumner Hayward'21, Ridgewood; Secretary, Fletcher P. Thornton, Jr.,'36, Summit; Assistant Secretary, Albert C. Faatz, Jr., '37, Maplewood; Treasurer, H. D. MacDonald'22, Newark. Committees: Scholarship, Everett W. Vilett'22, chairman, Short Hills; H. H. Brackett'12, Oradell; A. R. Brooks'17, Short Hills; Gordon Holbrook'10, Maplewood; Walter L. Wise, Jr.,'34, Plainfield; Placement, George A. Chutter'21, chairman, Glen Rock; Program, Grover Paulsen, Jr.,'40, chairman, Westfield; Herbert B. Larner '18, Ralph C. Swann'41, Cranford; House, M. M. Manshel'22, chairman, Orange; Leon B. Palmer'40, Arlington; Directory, A. P. Munning'22, chairman, Orange; Phone Contact and Fellowship, Frederick E. Strassner'38, chairman, Orange; A. M. Aronson'21, Jersey City; P. V. Bollerman'40, Teaneck; Arthur Schwartz'47, Orange. Board of Governors: Livingston P. Ferris'11, Montclair; William S. LaLonde, Jr.,'23, Short Hills; Gordon Holbrook'10, Maplewood; Harold F. Ballard '09, Orange; George M. Warner'91, Great Notch; Fred E. Kowarsky'21, Caldwell; Stewart C. Coey'06, Glen Ridge; Herman A. Affel'14, Summit; and James A. Emery, Jr.,'38. — FLETCHER P. THORNTON, JR.,'36, *Secretary*, 1 Primrose Place, Summit, N.J., Telephone: Su 6–6935M.

M.I.T. Club of Philadelphia

Two hundred Alumni and friends attended the dinner meeting on October 20 at the Campbell Soup Company in Camden. Guest speakers were John W. Barriger,3d,'21, President of the Chicago, Indianapolis, and Louisville Railway Company, and Gordon S. Brown'31, Professor of Electrical Engineering at the Institute. Dr. Brown, an international authority on servomechanisms, presented some unusual and thought-provoking concepts of the human being as a servomechanism. It is possible, he indicated, that in the future a great deal may be learned about man's behavior through the science of servomechanisms. Mr. Barriger, an enthusiastic railroader even in student days, is largely responsible for the progressive management of the "Monon" or "The Hoosier Line" as his railroad is often known. In addition to his talk, Mr. Barriger showed two excellent Kodachrome sound movies of railroading.

For the second consecutive year, the opening meeting of the season was a great success because of the gracious hospitality of James McGowan, Jr.,'08, President of the Campbell Soup Company and member of the M.I.T. Corporation. Mr. McGowan arranged another superb steak dinner for which he has become famous among the Philadelphia Alumni. At the conclusion of the meeting, everyone was pleased to receive samples of Campbell's soups to take home. It is no wonder that our meetings under Mr. McGowan's auspices have been the two largest gatherings in our 50-year history.

The following Alumni and guests attended the meeting: Arnold S. Ackiss'30; Richard G. Alexander'49; Claude A. Anderson'05; A. Rufus Applegarth, Jr.,'35; Frederick P. Baggerman'37; George W. Barnwell'14; John W. Barriger,3d,'21 and R. C. Morse, guest; George M. Bartlett'05; Constantine Bary'27; Risque L. Benedict'49; William H. and Mrs. Bertolet,3d,'48; George E. Bierce, Jr.,'47; Gordon S. Brown'31; John G. Brunner'34 and Malcolm Fox and James Springston, guests; David P. Burleson'38; James L. Burns'47; O. Donn Burton'18 and Donn E. Burton, John C. Fitzpatrick, and Alex Keller, guests; A. C. Carlton'17; R. E. Cernea'25; Frank S. and Mrs. Chaplin'32 and Michael Wawro, guest; Francis J. Chesterman'05; Edgar W. and Mrs. Clarke'39; J. Ernest D. Clarkson'21; Paul J. Culhane'23; Wendell N. Currier'31; Richard A. Denton'36; Dana Devereux '36; Henry S. Dimmick'22; John L. Dodson'31; Gerald L. Eaton'29; William W. Eaton'97; Robert C. Eddy'38; Edmund Engle'47; Samuel P. Felix, Jr.,'39; John J. Ferencsik'47; Charles J. Fisher'46; Robert G. Fisher'44; Harry H. Fisk'22; Donald R. Funk'29; Gregory G. Gagarin '43 and E. Cavanaugh, C. R. Kingston, and H. S. Swoyer, guests; Ezra Garforth, Jr.,'48; Richard D. Gerges'40; Patrick D. Goggin'43; Francis Goodale'17; Joseph Goodman'43; Richard L. Graff'39; Joseph Greenblatt'22; Henry Grinsfelder'31; Robert M. Harbeck'28; James S. Hardigg '45 and Jack Littlefield, guest; Eugene A. Hardin'21; Charles W. Hargens,3d, '41; Kenneth L. Harper'17; Henry D. Harrington'28; Warren J. Harwick'45; Karl E. W. Hellsen'32; Sanford J. Hill '21; Daniel J. Horan'48; William G. Horsch'13; Loring F. Hosley, Jr.,'43; Joseph F. Hovell'44 and Anne C. Hovell; Howard Humphrey'26; George N. Janes '28 and William G. Bayley, guest; Harlan R. Jessup'28 and Harlan R. Jessup, Jr., guest; Henry W. Jones'26; Lawrence G. Jones'40; Burkhart A. Kleinhofer'39; Joseph K. Knight'40 and Marshall A. Pease'41; guest: Kenneth V. Kratochvil '44; Ezra S. Krendel'47; Herbert Kurinsky'48; Carl A. Lindgren, Jr.,'18; George T. Logan'29; Robert A. Lombard '47; John G. Lord '39; Harold C. Mabbott'12 and Ray Wilson'12, guest; Elwood M. Manter'18; Harold F. Marshall '19; Richard B. Marsten'45; Samuel K. and Mrs. McCauley'41; Howard H. McChesney'07 and C. R. Shaw, guest; Harry B. McCurdy'44; James McGowan, Jr.,'08, John J. McHugh'34; H. Felton Metcalf'22; Ira L. Meyer'36; Charles E. Miller'33; Robert A. Miller'48 and Paul Gadebusch,2d,'49 and Frank B. Ryan '48, guests; Robert K. Miller'29; E. Everet Minett'41; V. G. Miskjian'29 and W. R. Nicolls and O. M. Salati, guests; John R. Mitchell'48; Jack L. Mohr'47; Gilbert P. and Mrs. Monet'43; Herbert R. Moody'41; Richard S. Mooney'47; Frank H. Moore, Jr.,'34 and E. James Moore, 2d, guest; Leonard Muldawer'48; John W. Mullen'41; John A. and Mrs.

Myers'36; Albert M. Naulty'47; Russell A. and Mrs. Nelson'39; Leonard F. and Mrs. Newton'49; Charles W. Noyes'15; Rev. John S. O'Conor'36 and Rev. H. J. Heim, guest; John C. O'Shea'45 and Charles M. O'Shea, guest; William H. Peirce'46; Thomas D. Perry'00; J. Clarence Peters'30 and A. J. Williams, Jr., guest; Edwardes S. Petze'28; William W. Pleasants'33; Oden B. Pyle, Jr.,'16 Morris A. Rabkin'24 and James L. Whittaker and Milton S. Winters, guests; Frederick E. Ray'38; Winthrop B. Reed'39; Frank W. Riddell'39; Robert E. Ritterhoff'46; Guy C. Rogers'24; Charles H. Ross'35; George F. Rowell'92; Donald H. Rushworth'29; Wladyslaw Sandowski'39 and A. E. Aletti and J. L. Tecosky, guests; Enno T. Sauer'37; Carl A. Schafer'11; Robert D. Schmitt'45; Solomon Schneider '15; Granville B. Smith'18; Dana R. Staples'24; C. Willis Stose'22; David E. Sunstein'40; Philip S. Sweetser'04; Charles J. Swet'46; Edward E. Talbot '26; Louis R. Taylor'26; James S. Thornton'41; Fred H. Travers'23 and Frank Travers'18, guest; Robert J. Tullar'13; Lawrence S. Vadner'22; Robert C. VanRavenswaay'48; Willard E. Vaughan'26; Robert R. Wagstaff'37; Hiram L. Walker '05; William J. Walsh'06 and Richard M. Walsh, guest; William H. Wannamaker, Jr.,'30; Cyrus H. Warshaw'47; Robert A. Wasel'48; Franklin E. Washburn'26; Robert W. Weeks'13 and Runyon Colie, Jr.,'40, guest; Edward A. Weissbach'16; Proctor Wetherill'34; Nathaniel A. White'06; Edmund A. Whiting '15; Perry W. Wilder, Jr.,'44; Milo V. Wilson, Jr.,'48; Charles P. Witsil, Jr., '37; Herbert L. Woehling'12; Charles B. Wooster'29; Robert E. Worden'36; Robert K. Wright'13 and Stanley J. Kudzma, guest.

We are pleased to note that our treasurer, Frank S. Chaplin'32, has advanced recently to a new position on the staff of the Franklin Institute. Frank is now associate director of the laboratories of the Institute.

With regret we learned of the recent passing of Charles L. Gabriel'12. Mr. Gabriel, long an active member of the Club, was vice-president of Publicker Industries. Members of the Club extend their sincere sympathy to Mr. Gabriel's family.

For information about Alumni in the Philadelphia-Wilmington area, telephone Boulevard 0287. — SAMUEL K. MCCAULEY '41, *Secretary*, 288 Copley Road, Upper Darby, Pa. *Assistant Secretaries:* WILEY F. CORL, JR.,'39, Box 358, Bryn Mawr, Pa.; WILLIAM H. PEIRCE'46, 532 East Mermaid Lane, Chestnut Hill, Philadelphia 18, Pa.

M.I.T. Club of Schenectady

The Club held its opening meeting of the 1949–1950 season at the Young Women's Christian Association at noon on September 20. Harold Chestnut'39, chairman of the civic improvement committee, reported on the activities of his group during the summer and outlined future plans for work on the new high school project. The principal speaker was Mrs. Clifford Mannal, whose topic was, "The United Nations Today." Mrs. Mannal spent a week at last summer's conference on the United Nations sponsored by Mount Holyoke and 29 other eastern colleges, as a delegate from the Schenectady chapter of the League of Women Voters. She described her visit to Lake Success, as well as her impressions of the conference, which was attended by educators, students, and persons representing various organizations. Emphasizing that the United Nations needs and deserves the support of every American, Mrs. Mannal pointed out that the U.N. is a going concern, and that many differences have been resolved in practice, if not in principle. The organization is hampered, however, by the state of economic flux in the world today, and by the failure of the great powers to conclude peace treaties, which task was not intended to be handled by the U.N. The speaker went on to list some of the successes achieved by the United Nations, and some of the services it offers to its members. After her talk, the meeting was thrown open to questions.

Present at the meeting were: Andrew Vogel'13, P. M. Currier'14, P. L. Alger '15, V. Y. Dunbar'16, T. R. Rhea'24, A. D. Hoadley'26, C. F. Barrett, Jr.,'34, L. H. Dee'35, Harold Chestnut'39, D. C. Jackson,3d,'40, I. W. Collins'41, G. M. Ketchum'41, J. S. Quill'41, R. H. Simon '41, R. W. Stanhouse'41, David Jealous '44, W. B. Rodeman'44, E. S. Lawrence '47, M. L. Vogel'47, T. J. E. Glasson '48, L. F. Coffin, Jr.,'49, and D. E. Ridgley'49. — IVOR W. COLLINS'41, *Secretary*, General Electric Company, Building 273 E-212, Schenectady 5, N.Y.

M.I.T. Club of Southern Texas

At the February 22 meeting honoring H. E. Lobdell'17, Executive Vice-president of the Alumni Association, a committee was appointed by Irwin W. Alcorn '23. The raison d'être and purpose of said committee is to draw up a constitution with bylaws for our Club. These, when adopted, will put our local association on a formal basis of existence, will provide regular meeting dates, including a periodic — probably annual — election of officers, all as enjoyed by many other clubs both here and abroad. The motion to appoint this committee was unanimously approved by the 59 Alumni present at the above-mentioned meeting.

The formalizing of our association will unquestionably inure to the benefit and enjoyment of the approximately 200 Alumni now in the southern Texas area. About half this number live in Houston or environs, the others being mostly in Baytown, Texas City, Beaumont, Port Arthur and Freeport. With the completion of the E. I. du Pont de Nemours' nylon plant at Victoria and the Aluminum Company of America's plant at Point Comfort, both southwest of here, we expect approximately a 10 per cent to 15 per cent increase in our membership. Thus, our organizing along formal lines is a timely as well as a progressive step. The meeting for this special committee was called for October 24 and the actions taken will be reported in the next issue. — JOSEPH H. MCEVOY'21, *Secretary*, 202 McGowen Avenue, Houston 6, Texas.

Washington Society of the M.I.T.

The Society opened its 1949–1950 season at the Congressional Room of the Willard Hotel on October 13. Attendance was good, many of the men appearing in the Society for the first time. Bill Peck '40 played his Hammond Organ for background music before dinner, as well as for singing. Larry Conant'21 and his son outdid each other in leading the singing, which was not only loud — but good. President Al Beitzell'28 introduced the new officers and presented Dr. Compton, who we hope will be at future meetings now that he is a Washingtonian. J. A. Furer'05 told us his plans concerning the M.I.T. Development Fund drive and promised that everyone would have an opportunity to participate in the Institute's plan to fund its independence.

The principal speaker of the evening was Edwin G. Nourse, chairman of the Council of Economic Advisors, Executive Office of the President, who discussed in expert economist fashion "The Economic State of the Nation." Dr. Nourse described his job as an attempt to gather in all the factors in the country's economic life and from them to distill economic truth. Two approaches to economic thinking were mentioned, one, a sound scientific approach which weighs factors and evaluates problems with engineering accuracy; the other, the ethical, reformist, emotional approach which is more apt to lead to error. The members heard in detail about the eternal race between supply and demand, how one always leads the other except for the momentary equality when they change positions.

Present were: S. F. Allison'33, G. L. Arnold'30, Jean Ashton'24, E. S. Bates'24, H. M. Baxter'17, A. D. Beidelman'15, A. E. Beitzell'28, A. F. Bird'30, L. T. Blood'22, J. R. Bloom'30, C. F. Burns '30, Zelda Carof'43, S. J. Cole'26, K. T. Compton, L. W. Conant'21, J. G. Crane '90, P. L. Dougherty'97, L. K. Downing '23, J. A. Furer'05, J. F. Gamber'31, Lester Glickman'32, R. A. Grosselfinger'40, R. E. Hage'40, A. S. Heyser'26, A. M. Holcombe'04, G. R. Hopkins'22, F. A. Hunnewell'97, T. A. Hurlbut'28, J. E. Jackson'24, Jennings'97, Allen Kirkpatrick'43, E. F. Kriegsman'05, V. S. Kupelian'39, D. A. Lundquist'19, Richard McKay'21, J. R. McKeever'36, F. D. McKeon'26, W. K. MacMahon'22, H. D. Manuelian'18, W. H. Martin'07, F. C. Meltzer'28, G. D. Mock'28, D. K. Morgan '32, H. C. Morris'00, N. C. Nelson'30, John Nolen, Jr.,'20, I. R. Paris'14, W. G. Peck'40, A. M. Pedersen'12, J. A. Plugge '29, F. S. Pohanka, Jr.,'44, H. W. Poole '30, H. D. Randall'31, E. W. Reisner'30, G. C. Riddell'04, R. M. Robertson'36, R. J. Robuck'43, R. F. Seedlock'40, J. W. Sheetz'42, W. R. Sherman'28, J. H. Sprague, Jr.,'43, G. W. Stose'93, F. W. Turnbull'30, H. A. Wansker'17, T. C. Warner, Jr.,'47, M. E. Weaver'05, H. E. Weihmiller'25, W. E. Wentworth'16, C. D. Williams, Jr.,'23, C. L. Zakhartchenko '25. — JOHN ADE PLUGGE'29, *Secretary*, 35 Oxford Street, Chevy Chase 15, Md. ALBERT F. BIRD'30, *Review Secretary*, 5070 Temple Hills Road, S.E., Washington 20, D.C.

CLASS NOTES

• 1886 •

The Secretary wishes he could hear from more of the members of '86, both M.I.T. and S.M.A., so that he would have something to write about that would interest the "remains" of the membership and start waking them up. Not much time left, as '86 will soon be the class having the oldest living alumnus! The Secretary's recent letter to '86 men about a possible class contribution to the $20,000,000 fund has not been out long enough to get an adequate reply, but so far there does not seem to be much enthusiasm about it. Anyway, there is not much prospect of a member's offering to match the wonderful gift of Alfred P. Sloan'95.

I have word from Ingalls who mentions his recollections of Frank Locke, captain of Company C in his first year and major of the battalion in his sophomore year, and of his social interests in the Young Men's Christian Association, and similar enterprises after his graduation. The Secretary always felt that Frank was one of the finest men in the Class, if not in the school. Ingalls calls to mind his (Ingalls') hatred of military drill which in later years he came to feel was good discipline, although his experience with ex-GI boys at Ingaldsby has not been such as to strengthen that opinion perceptibly. He also mentions his recollections of Chadbourne, who became one of Herbert Hoover's efficient assistants in Belgian relief in 1914–1915. As to himself, he says he had no sons but did have four daughters, two of whom were graduated from Smith. All four were Bradford Academy girls; his eldest granddaughter has followed in her mother's footsteps and graduated from Bradford last June.

The Secretary attended a special meeting of Alumni at Whitman, Mass., on September 23, called to present to the Alumni of southeastern Massachusetts a statement of the needs of the Institute; i.e., subscription of the $20,000,000 fund referred to above. The Corporation furnished a most delicious dinner at the Toll House and followed it by a talk by Treasurer Ford upon the requirements of the present-day Institute as compared with those of an earlier date, and by a showing of movies with sound accompaniment relating to the Institute of today and looking forward to the M.I.T. of tomorrow and the twenty-million-dollar fund. No attempt was made at the time to obtain subscriptions, but recently the Secretary has been approached by a subscription-seeking committee requesting pledges. This committee was informed of the letters sent to '86 alumni members and the plan to put any pledges in the form of an 1886 class gift. At this writing four replies have been received, all unfavorable, and a fifth letter from an attorney states that Birney Batcheller has become incapacitated and unable to make any reply. — ARTHUR T. CHASE, *Secretary*, Post Office Box 4, Island Creek, Mass.

• 1888 •

We regret to report the death of our classmate, George Davis Moore, brigadier general, U.S.A., retired, at San Diego, Calif., on December 12, 1947. We quote as follows from a memorial to General Moore which appeared in a West Point publication of October, 1948, and kindly sent to us by Mrs. Moore: "General Moore was born in Springfield, Illinois, the son of Davis Graham Moore and Martha Hudson Moore. His family later moved to Danville, Illinois, where he was graduated from high school. He then entered . . . Technology. After one year there he was offered by his Congressman, Joe Cannon (Uncle Joe), for many years Speaker of the House of Representatives, an appointment to West Point which he accepted. After graduating in the Class of 1890, he was assigned to the Infantry. He served in that arm until World War I, when he was assigned to the Inspector General's Department and ordered overseas for duty with the First Army Corps in northern France. After the war he was detailed as Senior Instructor of the New York National Guard. Serving with the Guard for four years, he helped to reorganize it. He was again detailed in the Inspector General's Department for four years and then ordered to Boston, where he was in charge of National Guard affairs of the First Corps Area.

"General Moore was a distinguished graduate of the School of the Line, 1908; Army Staff College, 1909; and the Army War College, 1911. He saw service in the Spanish American War, Philippine Insurrection, and World War I. He was the first Military Instructor sent by the War Department to the Kemper Military School, Boonville, Missouri, in 1897. He was Instructor of Military Art at the School of the Line from 1912 to 1914. When the School was closed because of the trouble on the Mexican border, he was ordered to join the 18th Infantry in Texas City. His last year of active service was at Fort Lewis, Washington. From there he and Mrs. Moore moved to San Diego, California, where he retired in 1931. George Moore had a noble character, sweet and gentle at all times, and during the last five years of his life, when health failed him, he never lost these fine qualities. His dear wife was devoted to him through it all to the end, as she had always been." — JOHN C. RUNKLE, *Secretary*, 49 Federal Street, Boston, Mass.

• 1896 •

Greetings! And thanks to those of you who have sent in material for the class notes. I have made acknowledgment for same and am hungry for more. Some of the boys take great comfort in reading the news. The following have been heard from during the past month: Mrs. Charles Tucker sends greetings to the Class. She has sold the farm to a 1921 graduate of M.I.T., and is now living at 74 Nesmith Street, Lawrence, Mass. Reverend Partridge, now at the Crestwood Nursing Home, 516 Warren Street, Roxbury, Mass., would appreciate hearing from any of his classmates. Charles G. Hyde wrote a very interesting letter to the Secretary and spoke of how pleased he always is to receive The Review and read the class news. He had just completed some work for the Community Chest.

Telephone conversations with some of the local boys reveal that: Perry Howard is feeling fine; Ralph Henry wishes to be remembered to all and tells us that he spent the summer in Guilford, Maine; Henry Grush is busy with his regular duties; James Driscoll informs us that his back is much improved; and Fred Damon is "as usual."

The following is quoted from a newspaper clipping: "Rear Admiral R. E. Bakenhus, Fifth Ave., has returned from an extended trip to the West Coast. He was a guest for a month of his sister, Esther, the wife of Dr. John E. Nelson, who lives on the shore of Puget Sound in southwest Seattle. . . . The visit was the occasion of an unveiling by Mrs. Nelson of a bronze plaque showing a side view of Admiral Bakenhus' head. The sculptor was Miss Florence Malcolm Darnault, Waverly Place. About 20 members of the family and friends were present. The bronze is a fine likeness, and those who saw it expressed appreciation of the work of the artist."

A letter concerning the late Russell Porter which was written to Charles W. Killam, Professor Emeritus of Architecture at Harvard University, by John Scott Campbell, Athenaeum, Pasadena, Calif., has recently come to the attention of the Secretary and he would like to share with the rest of the Class this fine tribute to our late classmate: "After spending a number of years in New England, during which time he wrote his famous *Amateur Telescope Making*, he came to Pasadena to help design the 200-inch Palomar telescope. Here he helped solve many of the knotty mechanical and optical problems, and as a sideline, he drew illustrations of all parts of the intricate structure. In the last few years, I used to take my classes in engineering drafting to his office to meet him and to hear a little lecture on perspective and shading. The students always enjoyed these visits, especially those who had built telescopes, using Porter's book as their bible.

During an all too short acquaintance, I came to admire Russell Porter as one of the truly great men of our times. He was constantly interested in every new idea, and was always puttering in the shop, building up gadgets and trying out things he had read about. Among so many professional scientists who all too often view their work with a somber seriousness, he was a rare and delightful amateur; in the best meaning of the term. In his death, the world of scientists and laymen alike has suffered a greater loss than it can ever appreciate."

Remember the class assessment of $2. — JOHN A. ROCKWELL, *Secretary*, 24 Garden Street, Cambridge 38, Mass. FREDERICK W. DAMON, *Assistant Secretary*, 275 Broadway, Arlington, Mass.

• 1897 •

Your Secretary is greatly pleased to be able to include in class notes news which is of a more cheerful nature than he has been furnishing of late. We are privileged

to quote the following paragraphs from the Cincinnati *Enquirer* of April 3 concerning our well-remembered classmate, Harry Pugh: "A. H. Pugh, 72-year-head of the printing concern which bears his name, is Cincinnati's No. 1 ice skater. For proof, the gray-haired, slightly built septuagenarian can show you his membership card in the recently organized Cincinnati Figure Skating Club. It reads: 'A. H. Pugh . . . No. 1' Young skaters at the Cincinnati Garden and the Terrace Plaza rinks constantly are amazed when they see Pugh, dressed in his customary gray flannel plus fours glide onto the ice and demonstrate that he can still hold his own on a pair of blades.

"Pugh has been skating since his childhood. He knows most of the famous figure-skating stars and never misses a big ice show when it is in Cincinnati or a near-by city. When a traveling skating troup hits Cincinnati he never fails to hold a party or luncheon for the stars. Pugh insists that he isn't or never has been a good skater, but says he can claim the distinction of having taken more lessons than anybody in Cincinnati. These lessons included instructions from professionals at Lake Placid, N.Y., one of the country's top resorts and his favorite vacation spot.

"One of his fondest recollections is an incident in the indoor arena at Lake Placid in the summer of 1942. Pugh was practicing a fairly simple trick called the 'grapevine' when a woman approached him and asked if he would teach the trick to her daughter. 'A pretty little girl came up and I showed her how I did it. She had no trouble catching on. She told me her name was Barbara Ann Scott.' Little Miss Scott, you probably know, has come a long way since then. She's the pretty Canadian girl who won the world's figure-skating title at the last Olympics." Congratulations to you, Harry, from us all. We well remember how you captured the 100-yard dashes and others in our undergraduate days and we rejoice that one of the Class, at least, has been able to maintain adown the years the pep and energy of his freshman days.

Arthur L. Jennings and family have taken up their residence in Washington, D.C.; Arthur having retired from his work in connection with the War Assets Corporation in Charlotte, N.C. — Proctor L. Dougherty recently entertained Ernest B. MacNaughton'02 of Portland, Oregon, at luncheon at the University Club, Washington, D.C. Mr. MacNaughton has recently been elected moderator of the Unitarian Association, Boston. He left Boston soon after graduation, and later became president of the First National Bank of Portland, Oregon. He is now president of Reed College in Portland. Proctor has been appointed honorary chairman of the Washington area committee in its M.I.T. financial expansion plan now underway. — JOHN A. COLLINS, JR., *Secretary*, 20 Quincy Street, Lawrence, Mass.

• 1899 •

Edwin A. Packard, II, is a patent attorney at 570 Lexington Avenue, New York City, and lives at 29 Cliff Street, Yonkers, N.Y. Subsequent to graduation at M.I.T., he took law courses at George Washington University and received the degrees of bachelor of laws and master of patent law in 1908. He is registered as a professional engineer with the State of New York and is a member of the bar in the courts of New York, Federal courts in New York City and the United States Supreme Court. From 1905 to 1910, he was assistant engineer in the United States Patent Office. He has been particularly interested in matters pertaining to combustion engineering. He attended the 50th reunion and had the time of his young (?) life.

Lawrence Addicks, who is one of the two of our Class who graduated in both Course II and VI, has specialized in mining engineering. During his first year out of college he served as draftsman for the Santa Rita Copper Mines at Santa Rita, New Mexico. He was superintendent of the Raritan Copper Works at Perth Amboy, N.J., from 1900 to 1905 when he became chief engineer and afterwards superintendent of the United States Metal Refining Company at Chrome, N.J. From 1914 to date he has been a consultant in metallurgical work in Belgium, Spain, India, Burma, Peru and Mexico. Lawrence was formerly a member of the Naval Consulting Board. He is the author of *Copper Refining* and *Silver in Industry*. His home address is Bel Air, Md. — BURT R. RICKARDS, *Secretary*, 381 State Street, Albany, N.Y. MILES S. RICHMOND, *Assistant Secretary*, 201 Devonshire Street, Boston, Mass.

• 1900 •

Fiftieth Anniversary reunion, June 8 to June 12, 1950. East Bay Lodge at Osterville, Cape Cod, where we have had so many happy reunions, has been reserved for our use from Friday, June 9 to Monday, June 12, 1950. If you are thinking of coming to the reunion, please let the Secretary know. We wish to have an advance list of all those who are coming.

Charlie Smith is engaged in organizing a small committee to remind the Class that it is the custom for each class to make a donation to the Institute as a 50-year gift. You should hear from him soon. By the way, a local Connecticut paper in reporting his recent retirement as vice-president, says: "Born at Somerville, Mass. in 1877, Mr. Smith started railroading at Boston with the New England Railroad, now a part of the New Haven. After graduating from M.I.T. he joined the Engineering Department of the New Haven Railroad and designed many bridges. From 1903 to 1928 he was engaged in engineering work in the middle west and served as consultant to the cities of St. Louis, New York, New Orleans and others in railroad and public utility problems. On January 1, 1928 he returned to the New Haven as vice-president to assist the president in matters assigned to him. He has had charge of purchases and stores since 1929, during which period he has had jurisdiction over the purchase of more than 350 million dollars worth of materials, supplies and new equipment." The article goes on to relate some of his many activities with the railroad, as major in the construction division of the Army in World War I, and with the War Production Board in World War II. Charlie has been an active member of many commissions, clubs, and engineering associations. You can learn all about these at the reunion next June! Mr. and Mrs. Smith have three children; Betty (Mrs. Robert Ewing of Hartford), Charles E., Jr., who graduated from M.I.T. in June, and Lester W., who will graduate from M.I.T. next June.

Harry Morris, III, writes: "Early in July the 'Boss' and I took off for Springfield, Mass., where my wife stayed for two weeks while my brother-in-law and I drove up into New Brunswick for ten days' salmon fishing in the famous Merinichi River. The fish were not numerous; guess they had heard of your drought in Massachusetts, but we went into a comfortable camp by canoe and did not hear the sound of a motor of any kind while we were there. On returning to Springfield the Boss and I drove right back up into Maine as far as Belfast, where she has relatives, and then 'trickled' down the coast, stopping wherever we wanted to and visiting old haunts on Cape Cod and along the shore. We stayed one night at East Bay Lodge with the idea that *if* I can't get to the reunion next year, because I'm on the west coast, or something, I will at least have a good remembrance of the probable class gathering place. If any of the Class knows of any unusually good fishing camps, or spots on either side of the border, I'd like to hear from them. We had tentatively planned to spend some time on the West Coast this winter but the very sudden death of our classmate, Dan Johnson, recently, at Tonopah, Nev., makes me less anxious to go. Are any classmates out on the coast now?" — Harry B. Chalmers sent us an invitation to the wedding of his daughter Faith to Joe Frank Daiak on August 27.

George H. Archibald, I, writes: "Many years ago I gave up my subscription to The Review. Fear I became too engrossed in far away interests such as my old Canadian alma mater, my son's schools and college, McGill, and when so many of my old classmates in Course I passed away, seemed to take less interest in Technology, though ever holding it in egregious regard. I was, unfortunately, only privileged to have a year there, in spite of my parents' insistence, having fallen into most attractive construction work on a large steel plant. I was enticed by my *then* chief to remain with him, which I did for five years and thereby learned much which I might never have done by forfeiting the opportunity. However, I assure you the instruction received at Technology (though a very indifferent student) blossomed with the years and stood me in great benefit in later studies. Now I am advised by my medical adviser to get away from the cold of winter and spring in Canada and live in this easy climate. (He writes from 235 East Lakewood Road, West Palm Beach, Fla.) When I found this was necessary, it seemed wise to get in touch with some of the old Technology friends if any were to be found in these southern states, and so, my inquiry which you so kindly answered. My general health is much improved in this warmer clime. I sincerely hope to attend the 50th reunion of the Class."

As this is being written, Charlie Smith wires the news that we are fortunate in that all special contributions either to the

50th anniversary class fund or to the Development Program will be considered as part of the class gift. Further details of this will be announced by Charles Smith, Class Agent.

We regret to announce the death of Karl Burroughs, X, on August 12 after a short illness. L. B. Buchanan'93, has given us a few details of Karl's life. He was a graduate of the Somerville High School and of M.I.T. Immediately after graduation, he entered the employ of Stone and Webster as chemist on a special research connected with explosives. In the following year he was transferred to the Fort Hill Chemical Company at Rumford Falls, Maine, as chemical engineer. He shortly became superintendent of their plant which manufactured chlorate of potash. He held that position until the early part of World War I when he was loaned to the New England Manufacturing Company and until the end of that War was superintendent of their Woburn plant where explosives were manufactured. He then returned to Stone and Webster as consulting chemical engineer until 1927. He subsequently acted as chemical engineering consultant on his own account continuing to do such work for his old employers from time to time and for other concerns. He was quite widely known and highly respected in the chemical engineering fraternity and universally liked by all who knew him. He was an acknowledged authority on early United States postage stamps and essays. He had a very fine collection of both which he disposed of a few years ago. He was always interested in geology, particularly that of Maine in the vicinity of the Arnold trail and made a trip through that district as recently as last May and early June. His death was a surprise and shock to his immediate friends and associates. For several years he had resided at 46 Langdon Avenue, Watertown, Mass. – ELBERT G. ALLEN, *Secretary*, 54 Bonad Road, West Newton 65, Mass.

• 1901 •

With the passing of our friend and secretary, Guy Peterson, his mantle seems to have fallen on me. I shall carry on to the best of my ability but as Guy did all of the work in connection with the class notes, it will take me a little time to get organized and into the harness. I hope that as many of you as possible will help me out by sending in any news which might be of interest to the Class. I feel, as I know you do, the great debt of gratitude which we owe Mrs. Peterson for the work which she has done in the past. She has very kindly written most of the notes for this issue.

I have received the following notice from Bob Williams: "Our 50th reunion seems a long way off but it is necessary to start making plans now if it is to be a success. The Class President, Phil Moore, has asked me to be the general reunion chairman and I am busy making out a list of committee members to assist me. Those I have already talked with favor the Oyster Harbors Club at Osterville, Mass., where we held our 35th reunion with 43 present and had a wonderful time. They also favor having our wives attend. I would be pleased to have any suggestions you may send me. The reunion dates will be June 9, 10 and 11, 1951. Reserve them now so that there will be no 'previous engagements.' You will hear from me from time to time as to the progress we are making. There will never be another 50th reunion for '01 and we want it to be our biggest and best. My address is 109 Waban Hill Road North, Chestnut Hill 67, Mass."

If any of you have not seen the series of articles on the Du Ponts which appeared in the *Saturday Evening Post*, beginning with the issue of October 15, you should look them up. They contain, among other things, interesting facts concerning the life of Lamont.

In the November issue of The Review, there was a brief notice of the death of our esteemed Class Secretary, Guy C. Peterson, who died suddenly in an automobile accident at Plymouth, Mass., on September 17. The sympathies of the Class are extended to his widow, Ada Wood Peterson, of New York. A letter from Mrs. Peterson received by me reads as follows: "It is with great sorrow that I have to report the untimely death of your esteemed Class Secretary, Guy Crosby Peterson, and enclose herewith a brief outline of his life. Guy was born in Duxbury, Mass., on January 2, 1880. He was the ninth generation in direct line from Elder Brewster, who crossed the seas in the Mayflower and landed in Provincetown in 1620. Guy's mother was Lucy Brewster. In his early life, Guy graduated from Partridge Academy and later from Powder Point Hall, Duxbury (a school for boys preparing for M.I.T.). After finishing at M.I.T. he returned to Powder Point Hall where he taught higher mathematics and French translation. I have often heard him say that the boys whom he prepared for M.I.T. passed all their exams with good marks, and he was very proud of his boys. Because of his remarkable ability to impart knowledge to others easily and cheerfully, and when he became fundamental plan engineer for the American Telephone and Telegraph Company, many of the chief engineers of the subsidiary companies throughout the United States frequently specified 'they wanted Peterson to come, instead of some other engineer.'

"In 1901, he was with the Boston Transit Commission for a time, working on the East Boston tunnel job. In 1902, he became associated with the American Telephone and Telegraph Company, Boston, in the engineering department; from 1905 to 1908, with the engineering department, Nebraska Telephone Company, Omaha, Neb.; from 1908 to 1909, with the engineering department, Chicago Telephone Company; and from 1909 to January 1, 1933 (when he retired) he was with the engineering department, American Telephone and Telegraph Company, New York, where he was fundamental plan engineer in the operation and engineering department. In late years his work consisted of studies for the new dial system here, and throughout the United States. He was a life member of the Telephone Pioneers of America and belonged to the M.I.T. Club of New York. Guy was always an ardent golfer up to the last. He married Ada Katharine Wood of Boston on January 10, 1907. The services for Guy were held in the First Parish Church, Unitarian, Duxbury, Mass., on September 20. In this old church his ancestors had worshipped for generations. Four of his '01 classmates acted as honorary pall bearers in addition to four of his oldest friends. They were Charles Bittinger, Ed Seaver, Bob Williams and Roger Wight. Guy was buried in Mayflower Cemetery, Duxbury, adjoining the old church.

"Here is part of a letter received from Carl Johnson from Pasadena, Calif., which expresses beautifully the high esteem held for Guy by the entire 1901 Class. I am deeply grateful for this letter as well as for the beautiful floral tribute sent by his Class. Carl writes: 'We, of the Class of 1901, will miss him at the 50th reunion, and I, personally, had been looking forward to seeing him then. He has been a faithful and diligent Secretary of our Class and his reports reflect his deep interest in his fellow classmates. The tributes we have to pay him are many and this applies to you, for your love and cooperative spirit undoubtedly did much to help him carry on to the heights he has attained and to win the affection and commendation of us all.'"

The following information is taken from our late Secretary's class data sheets held over from last spring: William Sturtevant, VI, retired, 32 East Manning Street, Providence 6, R.I. No comment furnished. Leonard D. Chandler II, retired, 369 Adams Street, North Abington, Mass. Robert L. Williams, retired January 1; address, 109 Waban Hill Road, North, Chestnut Hill 67, Mass. W. Fred Davidson, II, says: "Retired, and enjoying some travel and hobbies." Chester Chubb writes: "Business address, Suite 2200, 105 West Adams Street, Chicago 3, Ill.; residence, 308 Torcido Drive, San Antonio 9, Texas; occupation, president and director of the United Light and Railways Company, Continental Gas and Electric Corporation and the United Light and Railways Service Company. Our son, Niles, was graduated from Harvard in the fall of 1942 and entered the army in February, 1943. He was discharged as a captain in the fall of 1945. He will complete his law course at the University of Texas in June."

Benjamin Miller, VI, 131 East 3d Street, Cincinnati 2, Ohio, sent this message to Guy: "I wish to say I do appreciate all the trouble you've gone to as Secretary and that I find your reports very interesting." Joe Evans, retired, of 1305 South 35th Avenue, Omaha 5, Neb., sends this about himself: "A hole in one, at golf, what say? I have done this twice, but not able to do it now." He adds this bit about his present activities: "Mason; Continental Club; president, alumni association of Sigma Chi Fraternity; trustee of First Baptist Church; chairman of finance committee, also member of the advisory board; designing 4 and 5 bungalows as a hobby." Arthur C. Davis, V, 46 Summer Street, Gloucester, Mass., is president of Frank E. Davis Fish Company. Edward P. Fleming, III, 420 South Norton Avenue, Los Angeles 5, Calif., writes that he is consulting metallurgist, American Smelting

and Refining Company, at present in charge of western smelter research including development of new processes. "After 43 years' service with A. S. and R. Company, will retire at the end of this year and locate in California." Charlie Tufts, retired, 25 East 83d Street, New York City 28, says: "Yours of 2-1 is a good letter. I'm sure all the men are glad to see it."

The following classmates sent in no data about themselves, only their address: Austin T. Hyde, X, plant manager, American Cynamid Company, Beaver Works. Angus A. MacInnes, I, retired, 17 Essex Court, Port Washington, N.Y. Francis E. Cady, retired, 1694 Wood Road, Cleveland 21, Ohio. Edward P. Beckwith, V, reports he is retired and living at Garrison, N.Y. V. Frank Holmes, Post Office Box 143, Amherst, N.H., made no comment regarding his activities or hobbies, but he very thoughtfully sent $10 to the class fund. Harry R. White, 1 New England Avenue, Summit, N.J., wrote in: "Very nice report, Pete!" Milton W. Hogle, 311 French Road, Pittsford, N.Y., reports: "No change," but sent the treasury $10, "dues for 5 years." Mansfield Estabrook, II, 50 West 9th Street, New York 11, industrial real estate, remarked: "Thanks for your excellent report." Philip W. Moore, II, 80 East Jackson Boulevard, Chicago 4, Ill., President and Treasurer of Poor and Company. Charles Bittinger, 3403 0 Street, N.W., Washington 7, D.C. No comments, but sent the treasury $10. Ethel Gleason, West Street, Amherst, Mass., sent no remarks about herself. Farnum F. Dorsey, no comments. Warren Bickford writes that he is now a 'professional loafer,' lives in winter at Schenley Apartments, Pittsburgh 13, Pa., summers at Centerville, Cape Cod, Mass. Warren says: "Congratulations on the fine job you are doing as Class Secretary. I read with interest the 1901 class notes in The Review."

From Archibald L. Klieves, Box 127, Wheeling, W.Va., we received on September 13 the following report: "I have been retired for a few years but still keep in touch with the building trades. I am a commissioner of the Wheeling Housing Authority, a low income Federal housing project. This position has used considerable of my time correcting errors of design made when the project was built. I receive no pay for this work but have enjoyed the work very much." (Archibald sent the Class $5 and apologized for being "so late.")

We report with regret the sudden death of Theodore Lange on September 8. Only the day before, he had attended the Springfield annual fair. Ted was very good in sending us the news of that part of New England and we shall miss him.

On June 11 your Secretary, Guy, attended the Alumni festivities at M.I.T. in the company of Russell Putnam. He had a very enjoyable day, and a delightful evening at the Alumni Banquet. I am glad to report that on August 9 your late Secretary had a very enjoyable conference at the New Ocean House, Swampscott, Mass. Guy picked up Bob Williams at his home at Chestnut Hill and they joined your President, Philip Moore, and Al Higgins who was summering in Maine. After a fine luncheon of lobster, this august body proceeded to get down to business and discuss the preparations for your coming 50th reunion in 1951. Bob Williams was the natural selection to head the committee. Please give him your prompt support and keep in mind that this 50th reunion is to be well represented and all that you would want it to be. Most of the above class notes have been written by Ada Wood Peterson, 788 Riverside Drive, New York 32, N.Y. — THEODORE H. TAFT, *Secretary*, Room 3–282, M.I.T., Cambridge 39, Mass.

• 1903 •

Myron Clark, as usual, is involved in conferences on labor relations subjects; this time he was on a panel sponsored by Northeastern University, September 9, discussing "Personnel Administration and Human Relations." With him were representatives from Northeastern, University of Connecticut, the Institute, and Harvard Business School.

The Alumni Register advised us of the death of Andrew M. Fairlie, V., in Atlanta, Ga., on June 17. He was listed as a consulting chemical engineer. No further details are available. Henry H. Fales, II, died in Glens Falls, N.Y., on June 3. He had been a consulting engineer in Providence, R.I., for 18 years, but was formerly vice-president and superintendent of the Champlain Silk Company of Brooklyn and Glens Falls. Later he was vice-president and general manager of the Mason Can Company of Providence before opening an office as consulting engineer. Fales had been interested in class affairs and attended several recent reunions. He is survived by his wife, one daughter and two sons.

E. H. Millard, II, Works Manager and Director of Fort Pitt Bridge Works of Pittsburgh, sent us a copy of *The Daily Notes*, published by his company, and in which is described an "Open House." A picture of Millard as one of the "men who direct destiny of Fort Pitt Bridge Works," is given, together with an interesting account of the visit of thousands to the Fort Pitt plant. On the margin, Millard writes: "Was too busy to make it this June. Hope to be able to make June, 1953." G. H. Gleason, X, has sold his place in Winchester, Mass., and has bought a house in New Jersey. After several terms of five years each as the class representative on the Alumni Council, Cushman is resigning, being no longer conveniently located near Boston. I. F. Atwood, II, is being elected to finish out the unexpired term.

Plans are being pushed for our 50-year gift to the Institute. Districts have been designated and committees selected so that every member of the Class will be contacted during the next three years. Make your plans now to give up all cares and responsibilities to attend in Boston the 50th reunion in '53. — FREDERIC A. EUSTIS, *Secretary*, 131 State Street, Boston, Mass. JAMES A. CUSHMAN, *Assistant Secretary*, Box 103, South Wellfleet, Mass.

• 1905 •

Your committee for our 45th reunion next June, consisting of Bill Ball, chairman, Ed Barrier, Percy Goodale, Sid Strickland, Bert Files, Sam Shapira and the Secretary, ex-officio, taking the postal ballot of last spring as a mandate, and having canvassed carefully many possibilities for an assembly place have made arrangements at Oyster Harbors, Osterville, Cape Cod, Mass. Due to the fact that Alumni Day occurs on Monday and the consequent demand of all classes holding reunions for the week end prior to Alumni Day, the choice was extremely limited. Rather than accept an undesirable hostelry on this popular week end, your committee decided on Tuesday and Wednesday, June 13 and 14, with privilege of extension on individual desire. Since the vote of the Class was overwhelmingly to include the ladies, such arrangement will be made. The committee will, shortly after the first of the year, send out a general program and will appoint sub-committees for various activities and for various areas. Many will remember with a great deal of pleasure our 25th reunion at Oyster Harbors in 1930. It has everything; seashore with bathing, an excellent golf course, opportunity for all other sports, a splendid cuisine. The committee has arranged a very attractive rate for these particular dates. More, much more, later.

The *Milwaukee Engineering*, publication of the Engineers' Society of Milwaukee, in choosing one of our Course VI classmates as "Engineer of the Month," gives such an interesting and intimate account that we quote in full: "This month we meet a man well known throughout the electrical industry of Milwaukee and particularly by thousands of Marquette University graduate electrical engineers. Having spent thirty-five years in the teaching field, he has become a prominent educator, with twenty-nine years of service at the Marquette University College of Engineering. During this time in Milwaukee he has become recognized as an authority in electrical circles and often is called upon in a consulting capacity by such firms as the Louis Allis Co. and Cutler-Hammer, Inc. We introduce John F. H. Douglas, professor of electrical engineering and director of the Department of Electrical Engineering at Marquette University. Dr. Douglas was born on October 9, 1884. He received his S.B. degree in electrical engineering from . . . Technology in 1905, at the age of 21. Upon graduation he accepted employment with the General Electric Co. for one and a half years. Realizing the need for additional schooling, he then enrolled at Cornell University and received his Ph.D. degree in 1914. After completion of this graduate study, he taught for three years at Iowa State College and another three years at Texas Agricultural and Mechanical College, whereupon he accepted a position on the engineering staff at Marquette University in 1920. Several of his summer vacation periods were spent with the Southwestern Bell Telephone Co. in Dallas, Texas and some as civilian instructor for the U.S. Signal Corps. Thus he obtained a good background of both theoretical and practical engineering knowledge. Throughout his teaching career at Marquette, Dr. Douglas has had foremost in

his mind the improvement of the school's Electrical Engineering department. He has attempted to develop new courses of study and improve the existing courses, thus keeping ahead of the programs offered by many of the other engineering schools. His efforts materialized when he introduced a new course dealing with the double cage induction motor, a subject which is not as yet taught in any other school. Dr. Douglas points with pride to his success in teaching a required course in 'Electrical Transients,' usually an elective in other engineering colleges. Another important requirement which has been added to the curriculum at Marquette is Dr. Douglas' course in electrical design; this is also an elective in most other electrical engineering colleges. In adding these important and difficult courses to the curriculum, Dr. Douglas has found from experience that the majority of students enjoy, if not actually appreciate, the challenge to their initiative in coping with problems dependent upon mathematics and involving equations necessary in the field of electrical engineering. He has also found that the student develops greater confidence in himself when assignments concerning these highly technical and theoretical problems are presented, with the result that the student often responds with solutions in a form that the teacher himself had not thought of. Dr. Douglas has never believed in mixing the character development of the student with his studies. In the classroom he tends strictly to business, covering only the subject matter. However, he has been very instrumental in the development of the local Triangle engineering fraternity. In his fraternal work he pursued the character and personal development angle of the student by example rather than by preaching. Here again his experience has shown that demonstrating leadership and character to the students produces lasting results. In connection with this type of work, he is a member of the American Society of Engineering Education. Having no hobbies other than his teaching profession, Dr. Douglas has concentrated his leisure efforts to the study of the shape of lines of force and the number of lines of force in magnetic and electro-static fields. This phase of investigation being his pet diversion, he has simplified it by devising models which clearly demonstrate the actions of the lines of force in these fields. This method has proven very helpful in instructing students, as it demonstrates the practical applications in an understandable manner. Dr. Douglas has several models wherein he can demonstrate the phenomena of these lines of force in a three-dimensional magnetic and electro-static field. He also demonstrates fields in copper by unique models. Dr. Douglas has been an active member throughout his teaching career in the ASEE, American Physical Society and the AIEE. He was the Milwaukee Section chairman of the AIEE in 1934–35. He was also chairman of the Great Lakes Committee on Student Activities in the early 1930s. Many technical papers have been published by Dr. Douglas. Five of his most important papers on electro-static and magnetic fields, covering both theoretical and experimental work, have appeared in such important publications as the Physical Review, Proceedings of the AIEE, and the London Electrician. Dr. Douglas is nearing the age of retirement from his teaching profession; however, he intends to keep as active as possible in the field of electrical engineering and especially to continue studying the actions in the magnetic and electro-static fields. Since 1920, which was Dr. Douglas' first year at Marquette, the enrollment of the College of Engineering has increased from 200 to 1200, which has necessitated the new Engineering Building on Wisconsin Ave. at 16th St. Although this building was designed for a total of 600 students, it is commendable that Dr. Douglas and his colleagues worked out a scheme for handling double this number. This has been accomplished by teaching throughout the entire year and adding Saturday classes. Another aid in accommodating more students is by offering a continuous study curriculum together with the conventional method which involves a cooperative plan of school and industrial work. Dr. Douglas has observed that the most serious error made by young engineers is their timidity of making changes in jobs. Experience has shown him that the person failing to make these early changes to better his training is unable to make them later in life. It is usually too late when men find themselves misplaced; that is, trying to fit a square peg into a round hole. This probably could have been avoided if changes had been made earlier in the individual's career, thus strengthening his background and giving him more assurance of definite and faster progress in his particular line of endeavor."

Andy Fisher reports a very interesting meeting of the Crowell Winterizing Committee at Prince Crowell's summer home at Woods Hole on October 12. Present besides Andy and Prince were Eichler and Strickland. Boats were demasted, debarnacled, lobster pots and seines hauled, dry mopped and stowed for the winter. Remuneration? Good cheer and one of Andy's barnacle chowders. Al Gilbert stopped off in Boston on his way from West Newbury, Mass., to New York. Al is co-owner of a large apple orchard and had been down to the harvest. There should be a Merrimack Valley–Powow River Farmer's Club with Al, Frank Chesterman and Harry Charlesworth having farms so near together. O. B. Dennison'11 sends us a clipping from the Portland, Maine, *Press Herald* with a picture of a group of Maine women on the staff at General MacArthur's headquarters in Tokyo. In the group is Esther M. Barlow, daughter of Jim Barlow, I. Esther is in Special Services, Motion Picture division, getting up special pages on motion pictures for the various editions of *Stars and Stripes* in the Pacific area.

Jason L. Merrill, V, died following a brief illness at the home of his son, Richard, in La Habra Heights, Calif., on Saturday, August 7. He came to M.I.T. from Waterville, Maine, High School (1897 and Colby College 1901). For a number of years after graduation he was chemist in the Bureau of Plant Industry, Washington, D.C., then returned to Maine to teach chemistry of pulp paper manufacturing at the University of Maine, but finally returned to industry with the Valley Power Company Mills at Holyoke, Mass. He is survived by two sons. Leon G. Morrill, V, died at Whitefield, N.H., on October 10 while spending a vacation. Leon spent most of his life in the ink manufacturing business, from which he retired just a few years ago. He was a zealous member of the Antique Auto Association, by virtue of his ownership of a 1901 Pierce Motorette, still in operation. He leaves, besides his wife, a son and two daughters.— FRED W. GOLDTHWAIT, *Secretary*, 274 Franklin Street, Boston, Mass. SIDNEY T. STRICKLAND, *Assistant Secretary*, 69 Newbury Street, Boston 16, Mass.

• 1907 •

On the Saturday afternoon during our class reunion at Oyster Harbors Club last June, Chet Vose and his wife from Marion and Cecil F. Baker and his wife from Wareham, both of these towns being only a few miles from the Club, spent a few hours with us. Unfortunately, both of these men are in poor health, so were unable to spend the entire reunion period with us. In the New Bedford, Mass., Sunday *Standard-Times* of June 5, was an article telling of the interest and time that Baker and his wife have given all during their lives to textiles and the drama. Baker graduated from the University of Illinois in 1904 with an A.B. degree, and Charlotte Gibbs, who became his wife in 1913, was a classmate of his at that college. He received his B.S. degree in 1907 with our Class and in 1909 was awarded his master's degree at the Institute. Following about two years of travel in Europe, where he studied architecture, he became associated with a Chicago architectural firm devoted to the design of skyscrapers and hotels. He became head of the architectural department at Kansas State College in 1917. From 1923 to 1925 he was professor of architecture at the University of Cincinnati. Following several years of conducting his own office as an architect, he served from 1935 to 1947 as an architect for the United States Government in both the National Park Service and with the United States Engineers. In 1947 he had to retire on account of his health, and he and his wife have been living at the old Gibbs homestead on Gibbs Avenue in Wareham, Mass.

From time to time for many years, items have appeared in these notes regarding the Right Honorable Clarence D. Howe, our classmate, who at present is minister of Trade and Commerce for the Dominion of Canada and who is internationally known for his efficiency as the head of various portfolios in the Cabinet of the Prime Minister of that country. One of the most concise and yet complete stories of his life appeared in *Canada's Weekly* of May 6, 1949, this magazine being published in London, England. There is not space enough in these notes to quote from this article at length, but the closing paragraph reads as follows: "Howe to date has served Canada well as her Minister of Trade and Commerce. He is

conceded much of the credit for a vast improvement in Canada's trading position with the United States, in face of dollar difficulties, since he assumed this office. He is said also to have developed or maintained an equally satisfactory trading relationship with the United Kingdom, which he asserts will still further improve. Howe has always enjoyed an excellent 'Press' in Canada. He has surprised many of those who have observed his progress in the Canadian political field by the ease and facility with which he has contrived to transfer his talents from one Ministry to another — Railways and Canals, Marine, Civil Aviation, Munitions and Supply, Reconstruction and finally to the Ministry of Trade and Commerce. Upon occasion he has become a controversial figure in Parliament. That has been so notable since the advent to the national leadership of the Progressive-Conservative Party of Colonel George Alexander Drew, now Leader of the Opposition in Parliament. Howe and Drew have engaged in verbal duels which, in the few months since Drew entered Parliament, have assumed the proportions of acrimonious personal conflicts in two or three important debates. However, Howe has revealed himself to be a statesman not entirely lacking in a sense of humour, so that, more usually than not, what has appeared at the outset to have been the beginning of a bitter personal feud, has terminated in not unfriendly smiles on both sides . . ."

Last July, through the kindness of Frederic Menner of our Class, who lives in Santa Barbara, Calif., I received a clipping from the Santa Barbara *News-Press* of June, 1949, telling about the activities of Winsor Soule, who is an architect with his office at 116 East Sola Street, Santa Barbara. I quote from this clipping: "Work in civic affairs has been second nature with him since his arrival in Santa Barbara in 1911. He was on the original committee which founded the Community Chest and for years was outstanding in Boy Scout activities. He was president of Rotary Club and vice president of the Y.M.C.A. and for years served on the Salvation Army Board of Directors. . . . A lameness has forced a certain amount of cessation in such labor, but he continues his interest in singing. His efforts in community and Rotary Club singing are outstanding. . . . For years Soule has been a leader in the Santa Barbara Rod and Reel Club, serving numerous terms as vice president. He is an inveterate enthusiast over fly fishing, particularly for trout. . . . Despite the fact that for a good many years he has been partly handicapped, Soule has an athletic record of note. At Harvard he won the highly-prized 'H' at high hurdles. He was a high jumper of ability also. He was yachtsman for years and after coming to this city represented Santa Barbara in star boat racing competition at many regattas. He sailed under local colors at New Orleans, Chesapeake Bay, and Long Island. . . . Sports and fishing never interfered with his career as an architect. Starting in Boston he has devoted all his life to that profession. Since coming here he has practiced it first with Russel Ray; privately; with John Frederic Murphy and T. Mitchell Hastings and with the present partner, Mr. Murphy. Probably the most outstanding work his firm has ever done is the McKinley School in Santa Barbara. It was built on a ridge of hog-back type, considered at first impossible for a school. It proved an interesting problem and it was selected by the American Schoolbook Journal as one of the 12 best school buildings in the United States. . . . The firm has been prominent in church building work. Soule is on the advisory architectural board of the Lutheran Church of Southern California and also the Presbyterian, though a member of the Episcopal Church. His firm has done six Lutheran buildings, including that in Yuma. At present they are working on the new Pasadena Presbyterian building, the largest of the state. . . . Following preparation at St. Paul's School at Concord, N.H., he entered Harvard and graduated from that university with an A.B. degree in 1906. He got a B.S. from M.I.T. in 1907. . . . In 1907 Soule married Judith B. deForest, but was divorced in 1926. In that year he married Madeline Bradbury and one child, Winsor, Jr., was born from the union. Mrs. Soule died and on April 30, 1929, he married Barbara Baker, of Santa Barbara. They have a daughter, Barbara Ida. They reside at 770 Mission Canyon Drive. He is a member of the University, Santa Barbara and Rotary Clubs. He is a director of Construction Planners, Inc., Los Angeles; a former chairman of the Board of Park Commissioners, in 1925; president of the California State Board of Architectural Examiners and member of the California Council of Architects."

In the November Review I told of the enjoyment that came to me by chatting with Joseph Damon Whittemore at the luncheon at the Waldorf-Astoria last July. The New York *Journal and American* of September 19, tells of Whittemore having left the Chase National Bank, with which he was associated since 1932 and where he has been vice-president in charge of public utility loans since 1936, to become the head of the Public Utilities Department of Lehman Brothers, investment bankers, at No. 1 William Street, New York City. Ever since leaving the Institute, our classmate has been associated with various public utility companies such as Rochester Gas and Electric, Niagara Hudson Power, Gardner Electric Light, Monongahela West Penn Power, Mohawk Hudson Power, New York Power and Light, Utica Gas and Electric, and Syracuse Lighting, all prior to his connection with Chase National Bank. As stated in the November notes, he served as a member of General MacArthur's headquarters staff during 1946. During the summer of 1948 he was a members of the E.C.A.'s so-called Stillman Mission to China.—BRYANT NICHOLS, *Secretary*, 23 Leland Road, Whitinsville, Mass. PHILIP B. WALKER, *Assistant Secretary*, 18 Summit Street, Whitinsville, Mass.

• 1909 •

You will note that the story of the reunion in the November Review included a good deal of news about many classmates and their activities. It would have been better for all of us if we could have spread these items over several numbers, but we could not let the reunion news get that cold. However, we have saved a few interesting notes that have come to us and for which there was no space last month. The following letter was received from Cummings Dort, I: "Since I cannot attend the class reunion I will report to you briefly re the current situation. As you may recall, I was in charge of the engineering work of the Northeast Region, United States Forest Service, but about a year ago I was retired in part for having reached retirement age (not required until 70) and in part for some disability (visual disturbance that affects my reading ability to a considerable extent). But this is not too bad as I have sufficient hobbies and interests to keep me busy and contented. I am sorry it is not practical for me to attend our class reunion. The only one for me was 1910 and that is quite a long time ago. I fear some introduction would be necessary with all our gray heads, bald pates, or whatever father time has done to us. The program outlined in the several letters received the last few months is most interesting and you will all have a wonderful time."

Francis Soderstrom, III, of Phoenix, Ariz., writes to Paul Lord, III: "Regret that I will not be at the 40th reunion for somehow I have been out in this country too long and have no desires to revisit Boston, even though it was my birthplace. Furthermore, have no relatives back there so would feel more or less a stranger and in that cold eastern atmosphere — no thanks, I prefer Arizona. Don't travel much nowadays. However, if I ever get to El Paso will make a trip to the Mills Building and look you up. Did hear about you, indirectly, Sunday from one, Tom Davis, so know that you are O.K. You might have that outfit of yours, A.S. and R., keep the price of lead up so that they at least can continue to pay dividends, for I have some of that stock. Here is hoping that you and Mrs. Lord will enjoy the reunion. You might eat a couple of lobsters for me, for that is the only thing that I miss from there."

That Nelson Harrub, XI, did not return immediately to Tennessee is evidenced from the following news item appearing in the Plymouth County *Weekly Independent:* "C. Nelson Harrub of Nashville, Tenn., who has not been in this section of the country for 12 years, has been visiting relatives. He spent several days with his sister, Mrs. Flora Stiles, Smiths Lane, Kingston, and was the guest on a boat trip Tuesday of Edward E. Howe. He has also visited his brother George in Brockton and his sister, Mrs. Adeline Bricknell in Plympton. While here he attended the reunion of his M.I.T. class at Osterville, Cape Cod. He was accompanied by Mrs. Harrub." On Saturday, October 1, Ann Dewey, daughter of Brad and Mrs. Dewey, was married in the Harvard Memorial Church to S. Leonard Kent,3d, of Bryn Mawr, Pa. Brad was recently elected a trustee of the American Optical Company. At present he is a trustee of the Mount Auburn Hospital, Cambridge, a director of the U.S. Smelting, Refining and Mining Company,

and the American Research and Development Corporation.

Ernest Curley, II, has just retired after teaching woodwork for 39 years in the Mechanic Arts School at Lewiston, Maine. Immediately after he completed his studdies at the Institute he became an instructor in mechanical engineering for a short time and then accepted the position of teacher in the Lewiston school where he has remained until his present retirement. It was stated in the Lewiston-Auburn *Republican* that: "Lewiston High is losing a teacher who has been faithful and loyal for thirty-nine years. Mr. Curley will be missed by all the boys who have worked with him in the past." Ernest and Mrs. Curley observed their 34th wedding anniversary on June 30. We have learned that Tom Desmond, I, did not let the reunion interfere with his literary pursuits, for the following articles written by him have appeared in the July number of current magazines: "Pensions From The Boss," *Coronet;* "Judges at the Pork Barrel," *Magazine Digest;* "Death Cuts No Corners," *Hygeia.* The *Magazine Digest* has also published "The Reporters Who Wouldn't Talk" in the November, 1949, issue. We note with interest that Tom has been elected a trustee of the Theodore Roosevelt Memorial Association.

Molly Scharff represented M.I.T. at the inauguration of President John T. Theobald of Queens College, Flushing, N.Y., on October 11. A letter from A. B. Morrill, dated September 23, indicates that he is still continuing his activities as a member of the World Health Organization in Shanghai in spite of the advent of the Chinese Communists. A. B. makes the following interesting comment: "The curious fact is that, although the Chinese leaders insist that they are Communists, what they are trying to do is not Communism. It is revolutionary, just as the recent changes in Britain are revolutionary, but I see no reason why the United States should not live in peace with both countries." Royce Gilbert and Mrs. Gilbert were recently visitors to New York from Wilkes-Barre and Mrs. Scharff and Molly enjoyed having dinner with them.— PAUL M. WISWALL, *Secretary,* 527 Belleville Avenue, Glen Ridge, N.J. CHESTER L. DAWES, *Review Secretary,* Pierce Hall, Harvard University, Cambridge 38, Mass. *Assistant Secretaries:* MAURICE R. SCHARFF, 285 Madison Avenue, New York, N.Y.; GEORGE E. WALLIS, 1606 Hinman Avenue, Evanston, Ill.

• 1910 •

I have arrived at the conclusion that one of the best methods to receive information for these class notes is to send out requests for class dues and, by way of interjection, I wish to ask those who have not sent in their dues to please remit. Many classmates who sent in their checks wrote personal notes which are not of interest to others, while others follow herewith: Carroll Benton is still running the monthly luncheons for '10 men in New York City environs and writes as follows: "I was tied up on Grand Jury duty all of last month so wasn't able to get the fellows together for the monthly luncheon. Have heard from Cliff Hield. Told him I would be glad to do what I could to help make the 40th a success; i.e., by getting as many as possible of the New York classmates interested."

H. N. Crichton writes as follows: "I am not in the division office at the Navy Drydock at the present time but have been transferred to the Cape Cod Canal in charge of its operation and maintenance. Hope we do have a good reunion in 1950." O. J. Crommett writes: "Am feeling just tip-top and plugging along at the same liability insurance game keeping the old customers happy; and, I do not have to quit at 65 – hooray." Dick Goodwin writes as follows: "At the present time I do not know whether I can make the reunion or not, but I shall do my best." I really feel Dick will be in Boston next June.

Allen Gould is busy with M.I.T. affairs and writes as follows: "Recently received a questionnaire from Cliff and it looks as though he were going after things energetically. M.I.T. matters are very active here. Attended two meetings of the local committee on Financing Development and one of the executive committee meetings so far this week." Phil Harris sent me a clipping from the Wilmington *Journal* of September 15 showing a very attractive perspective of a bank building for the Dover Trust Company for which he was the architect. Phil also writes as follows: "The last time we were in contact was, I believe, when consideration was being given to a post office for my home town of Orange, Mass. What our wealthy Uncle Sam finally put up in that pretty town is a shame. Well, that was long ago. Enclosed is an article that most recently has my name in print. It is curious how vividly the long days at Technology come back in memory and especially the personalities of friends then made! And the years can be counted in decades. Herewith go my best wishes to you, Frank Bell, Cliff Hield, and the many, many good fellows I like to remember."

Norris Harrison writes as follows: "I am sorry to say that my work as president of the Fidelity Storage and Warehouse Company has been of such a nature that I have not been able to keep up with my Technology friendships and I see very few M.I.T. men except for a few of my fraternity brothers. None of my three sons attended the Institute, so my interests have been elsewhere. Two of my boys are officers in the Army and the other is an officer of the Storage Company. Outside of my job with the Storage Company I am vice-president of a small oil refinery, the Charles F. Kellom and Company, and sit on a few boards. It is nice to hear of Frank Bell and Cliff Hield. I saw Frank after the War on his way to Texas but have not seen or heard of him since. I expect to retire from active business on October 1 and become chairman of the board of the Storage Company, leaving the active work to my son. Mrs. Harrison and I have a small farm on the eastern shore of Maryland which will, I hope, serve to keep me busy and out of trouble."

Larry Hemmenway sends his advice for attending the 40th reunion: "Very pleased to get your letter of September 27 regarding the 1910, 40th reunion. With Frank Bell, Cliff Hield and you using your creative brains, it will be good. Better tell everyone they better be sure to come. Their chances for the 50th are slim (see mortality tables)." Gordon Holbrook writes as follows: "Still doing business at the old stand continuing as special lecturer on management and personnel relations subjects at Newark College of Engineering. Have been making an educational survey for the State of Requirements of Industry. Am district chairman for the M.I.T. Development Program. Otherwise, I enjoy retired leisure." James Kellogg writes that he is now retired and is living in Raleigh, N.C.

Cliff Hield is performing a wonderful job in preparing for our 40th reunion. He has appointed a class member in every large city to keep in touch with other class members in their locality so that we will be assured of the largest attendance we have ever had at any reunion. The program committee has tentative plans which will assure those attending of the best time they have ever had. I hope every member of the Class will answer Cliff's questionnaire and letters so that all arrangements can be settled. — HERBERT S. CLEVERDON, *Secretary,* 120 Tremont Street, Boston, Mass.

• 1911 •

On October 1 we lost one of the most popular and active members of the Class when Ted Van Tassel, X, succumbed after a gallant fight against cancer. The end came at Deaconess Hospital in Boston and, fortunately, his devoted wife, Helen, and his daughter, Nancy, were with him at the end. Charlie McManus, I, O. W. Stewart, I, and Frank Wood, II, represented 1911 at the memorial services which were held at the Dane Street Congregational Church, Beverly, on October 5. Born in Roxbury on April 16, 1889, Ted and his family moved to Newtonville when he was a youngster, so he graduated from Newton High School in 1906 and then attended Pratt Institute, Brooklyn, for a year before entering with us as a freshman. He captained our class football team at both our freshman and sophomore year Field Days, was class representative on the Athletic Association during those same two years and was a member of the Tech Show chorus in his sophomore year. He was a member of Sigma Alpha Epsilon Fraternity and received his bachelor's degree in Chemical Engineering.

Almost from the start, he specialized in the leather industry and soon he formed the Van Tassel Leather Company, but with the outbreak of hostilities, he entered World War I and served with distinction. Returning from the War, he devoted a great deal of his time to consulting engineering in leather and was located in Norwich, Conn., during the late '20's and early '30's. From 1935 to 1938 he was in Peoria with Hiram Walker and Sons, returning then to Newtonville to continue consulting work. He again served his country with distinction in World War II, as a major, serving successively as administrative officer at Fisk Tire Company, Chicopee Falls; Hunts-

ville Arsenal, Alabama; United States Reconditioning Hospital, Camp Custer, Okla., and the United States Regional Hospital at Camp Polk, La. On returning to civilian life in late 1945, Ted perfected the Sealed-Seam Welt Process, Inc., and during the last two years had been in investment securities. A regular attendant at our reunions and class dinners, he will be sorely missed and to Helen and Nancy have gone the sympathy of all of us.

In late September, Gordon Glazier, VII, and his wife, of "Ledgewold," Lincoln, Mass., announced the engagement of their daughter, Dorothy Louise, to Dr. William P. Dodson, son of Mr. and Mrs. James R. Dodson of Norfolk, Va. Dorothy, who is present holder of the New England Singles skating championship title and with her sister, Leslie, the Women's Pairs championship, studied at the Choate School in Brookline, attended Radcliffe College and is a graduate of the Boston Children's Hospital school of nursing, being also a member of the Skating Club of Boston and the Longwood Cricket Club. Dr. Dodson graduated from Randolph-Macon College and from the University of Maryland Dental College. He interned at the Children's Hospital in Boston and served as a lieutenant (j.g.) in the United States Naval Reserve during the War. A December wedding is planned at St. Anne's Episcopal Church in Lincoln. Best wishes to the young couple!

"Student Travel by Air to Europe" is the subject of an interesting article in *The Logan International* of September 29 by Emmons Whitcomb, X, associated with the University Travel Company, off Harvard Square in Cambridge and also consultant to the Office of Tourism, San Juan, Puerto Rico, and chairman of the Educational Travel Advisory Board, American Society of Travel Agents. Whit believes there is $3,000,000 potential air business for the Trans-Atlantic Air Lines in this student travel to Europe for "perhaps no obligation lies heavier with the United States students than to learn more of the lives and motivations of the peoples who live beyond the borders of our country."

"It is estimated," Whit continues, "that 10,000 students went to Europe in the summer of 1949 – probably 25% more than traveled abroad the previous summer. That more did not go is simply due to the fact that economical transportation was not available. For the summer of 1950 a conservative estimate of the volume of this traffic is 15,000 – all depending on the position taken by the scheduled air service and, in particular, the three United States carriers." Whit's company this summer arranged for 80 students, under the auspices of the M.I.T. National Student Association, to travel to Europe and back in two specially chartered planes of a scheduled Trans-Atlantic carrier at a cost of but $350 each, round-trip and so far as is known, these were the first students ever to cross the Atlantic as a unit on a chartered plane of a scheduled air carrier. Whit also describes the M.I.T. Foreign Student Project, in operation for the past two years, and planned for 1950, adding that with proper planning trips could be tied together at a saving to all concerned.

On the day that President Truman made his dramatic announcement about a Russian atomic explosion, General George Kenney, I, was in Santa Monica, Calif., to speak at a luncheon marking the 25th anniversary of the Air Force's first round-the-world flight. He told the press that Soviet Russia positively did not have a long-range bomber comparable to our B-36, but did have planes "that could carry an atomic bomb over the ocean." He believes, therefore, that the United States must now maintain a "twenty-four-hour radar service" to protect itself against a "sneak attack" and said the President's announcement "should make the boys burn the midnight oil a little more." Apparently George has finished his proposed book (although I haven't seen it yet), for Ed Sullivan says in his syndicated "Broadway" column for October 18: "From the pages of General George Kenney's fascinating book, for the first time General Douglas MacArthur emerges as a human being, though Kenney calls his shots. The South Pacific anecdotes are heartwarming: Kenney reveals in one story, that he first met Congressional Medal winner Dick Bong when then Air Force Lieut. Bong was carpeted, charged with stunt-flying under San Francisco bridges. Gen. Kenney let him off with a stiff warning. The reason: In World War I, Lt. Kenney had been carpeted, for stunt-flying HIS first plane under New York bridges!"

In mid-October, during the "Battle of the Pentagon" in the hearing room of the House Armed Services Committee on Capitol Hill, Rear Admiral Luis de Florez, II, now back in consulting engineering in New York City and an inactive Naval Reserve officer, added his testimony to that of other top Navy "Brass" that the Navy has not been allowed to design and develop the weapons it needs, but has been forced to accept the views of persons who do not understand sea power. – Hats off to John Taylor Arms, IV, president emeritus of the Society of American Etchers, Gravers, Lithographers and Woodcutters, Inc., in New York for having his etching, "French Lace," chosen as the society's "Print for 1949." – At a late September joint reunion of the Rice and Brigham families at the Wayside Inn, South Sudbury, Johnny Bigelow, IV, Marlboro's city engineer, was elected vice-president of the Rice Family Association. – Pop Hufsmith, VI, president of the First National Bank, Palestine, Texas, writes: "Many thanks for your solicitous inquiry. I am still alive, but probably it is much later than I think. It would be mighty nice to return to the United States and see some of you boys, and maybe someday I'll get up that way." – Wes Jones, II, an official of Barco Manufacturing Company, Chicago, writes that he is attending his 40th reunion at Virginia Polytechnic Institute this year and hopes to make the 1911 reunion in June, 1951. We surely hope you do, Wes! – Harold Robinson, I, reports from Worcester that he and his son, Henry, are busy in their consulting engineering firm and are really having difficulty getting sufficient help in the civil engineering line.

Once again 1911 is the first class to reach its quota of contributors to the current Alumni Fund, our 122 givers giving us 101 per cent on the September 30 report of progress, but we are in sixth place in quota of dollars contributed, being at 97 per cent on said report. Congratulations to 1912 for leading all classes at this point with $4,203, or 156 per cent quota! Every once in a while the Alumni Register comes up with a 1911 "prodigal son." This time they inform us that A. Washington Pezet, XIII, of whom we had lost complete track, is now at Post Office Box 497, Millerton, N.Y. A new address for Bill Foster, IV, is 1218 Bank Street N.W., Washington 7, D.C., while Ed Vose, XI, who for lo! these many years has lived in Newton Center, is now located at 1731 Beacon Street, Brookline 46, Mass.

Just in case you forgot to mark down the 40-year reunion dates, as instructed in the November issue, here they are again: June 8, 9 and 10, 1951, at East Bay Lodge, Osterville, Mass., and then Monday, June 11, 1951, "back to Tech" for Alumni Day. – ORVILLE B. DENISON, *Secretary,* Chamber of Commerce, Gardner, Mass. JOHN A. HERLIHY, *Assistant Secretary,* 588 Riverside Avenue, Medford 55, Mass.

• 1912 •

At the French Embassy on June 14, before a distinguished company, General Lauzin, Air Attaché, conducted on behalf of the Ambassador, a ceremony of presentation of the Legion of Honor to General George C. Kenney'11, (rank of commander) and to Professor Jerome C. Hunsaker'12, (rank of officer) Head of the Department of Aeronautical Engineering. Our heartiest congratulations! – The Newark *News* of May 4 reported that: "Mr. and Mrs. Frank J. Osborne, VII, of 40 Woodland avenue, East Orange, will be guests of the East Orange Health Department staff . . . at a dinner in Hotel Surburban given in honor of Osborne's 25th anniversary as health officer. A graduate of the University of Rochester and M.I.T. where he majored in biology and public health, Osborne was an assistant health office in Montclair, and then Orange health officer from 1913 to 1916. He was a special organizer for the New York State Department of Health and executive secretary of the Control of Cancer before receiving the East Orange appointment in 1924." Again, best congratulations.

The Associated Press recently carried this story from San Juan, Porto Rico: "Edward G. Echeverria, (son of Carlos P., II,) of Beach Haven, N.J., won the 10th annual San Juan Comet Boat Regatta today. Echeverria scored 32½ points for three races to beat out Manual Espasa, of Porto Rico. Echeverria finished second in the final race today." – Your Secretary enjoyed a pleasant chat with Oliver Lombard, VI, in Short Falls, N.H., recently. Oliver runs the general store and post office as well as sales and service of Frigidaire equipment, in which phase his younger son is active. The older boy and two daughters, all of whom were in

the Service during the War, are married and account for five grandchildren up to date. — The Beverly *Times* of June 13, included in its Manchester Briefs: "Charles Dodge, of Lincoln Street, is attending an M.I.T. Reunion." Charlie — how about Annie?

We regret to record the passing of Charles L. Gabriel, X, on September 24. Your Assistant Secretary and Mrs. White met Charles and Mrs. Gabriel at breakfast on September 20 at the Atlantic City Convention of the American Chemical Society. The ladies went out together later that day. That night, Charlie suffered a heart attack, from which he never recovered. He was a vice-president of the Publicker Commercial Alcohol Company of Philadelphia. Our deepest sympathy goes to Mrs. Gabriel and family. We also report with regret the belated news, without details, of the death of Herbert H. Stevens, III, of Hershey, Pa., on November 8, 1948.

Jim Cook figures in the following news of his family and some Course VI classmates. First, the Marblehead *Messenger* of September 8 recorded that: "A very pretty wedding took place Saturday morning at the Church of Saint Andrew, Wyman Memorial, Marblehead, when Miss Nancy Edith Gebow, daughter of Mr. and Mrs. George Gebow of 30 Commercial Street, Marblehead, became the bride of James Arthur Cook, Jr., son of Mr. and Mrs. James A. Cook of 8 Trinity Road, Marblehead. The Rev. Roy M. Grindy performed the double ring ceremony. The bride, given in marriage by her father, was graduated from Marblehead High School and the groom was graduated from Phillips Academy, Andover, and is now a student at MIT, being a member of Alpha Tau Omega Fraternity. He served with the U.S. Marines during the war." Then, the Lynn *Item* of September 15 said in part: "Plans for far-reaching changes in methods of supplying gas to Greater Lynn consumers, including a changeover from water gas to oil gas a year hence, were made public today by James A. Cook, vice president and general manager of the Lynn Gas and Electric Company, in a talk before the Lynn Rotary Club." Jim's talk was given in full and his discussion of the problems involved in the change from water to oil gas with preparation for eventual sale of natural gas was most interesting. Jim also writes: "On Wednesday, June 22, the American Institute of Electrical Engineers held a summer convention at the New Ocean House. Henry W. Codding and his wife Amy attended and were hosts to Hildur and me at the banquet. On the following day, Henry and I spent three hours aboard the heavy cruiser U.S.S. *Rochester* which was anchored off Nahant. We were impressed and delighted with our reception. Henry and Amy have two daughters, Frances and Eleanor, each of whom is married. Henry is a proud grandfather. He is listed on the payroll of Public Service Company of New Jersey as senior engineer and has 10 or 12 young chaps working with him in the design, construction and operation of electric generating stations of the company. The Coddings enjoy good health and are happy in their home in Upper Montclair.

"Harold H. Brackett was unable to attend the convention although he had hoped to do so. Harold tells me that his company has been denied well-justified and needed rate increases. This action has made it difficult to carry out the large construction program needed in New Jersey. Harold is one of the top telephone engineers of the New Jersey Bell Telephone Company. He makes his home at 515 Summit Avenue, Oradell, N.J. He is unmarried but is fortunate that his sister, Mrs. Edith Forbes and his niece, Eleanor Forbes, share his home. Bob Wiseman was also at the New Ocean House, A.I.E.E. convention. He was seriously ill last fall and, under doctors' orders, is passing up strenuous activities. Bob looks well. He is chief engineer, Okonite Cable Company." — FREDERICK J. SHEPARD, JR., *Secretary*, 31 Chestnut Street, Boston, Mass. LESTER M. WHITE, *Assistant Secretary*, 4520 Lewiston Road, Niagara Falls, N.Y.

• 1913 •

Attending the Alumni Banquet in June were: Achard, A. L. Brown, Cameron, Capen, Gustin, Murdock, Peck, Terry, Townsend, Nat and Charlotte Sage, and Bob Weeks. Bob's sister Dorothy, a Wellesley graduate, has a Guggenheim fellowship in physics and is working this year at M.I.T. in her special field of spectroscopy. The June report of the 1948–1949 Alumni Fund showed that our class record was good. We exceeded quota in both number of contributors and dollars. Among the classes of 1910 through 1916 inclusive, only 1911 topped us by a matter of a few dollars.

Lester Gustin, I, was very kind to send me a copy of his 150-page book on *The Gustin Family*. Starting in Somerville High School, Lester, as class poet, has continued over the years to write poems. They have a "home spun" quality which I admire. For example, this book opens with a five verse poem "Heritage": "Well, here's my tale, for I have been on a genealogical spree / And I've swung through the leaves of the misty past, that hang on our family tree / A name and a date, on a dusty page, occasionally, too, a line / But I wonder the innermost lives they lived, those long gone sires of mine." Lester's book is the story of the Thomas Gustin branch of the family tree. I judge that Lester spent a long time on this work, but modestly he writes: "I have had a great deal of pleasure compiling this work. I only hope that some of the family may have as much fun reading it. Ancestry is fascinating, but it should not be the end of all interests."

In August, Bill Brewster, II, was the guest of honor and speaker at the 1949 Massachusetts luncheon of the Newcomen Society of England, held at Plymouth. I have a copy of the very attractive booklet which contained his address. Its title is "125 Years of Rope-Making in Plymouth." Bill is handy with modest understatement. About a business which has to scour the world for its raw material, and hasn't missed a dividend since 1857, he said, for example: "We aren't a large company, and you must not look for much glamor in the Plymouth Cordage story. No such revolutionary discovery as the airplane, the automobile, radio or television accounts for its record. Without having made any world-shaking invention, Plymouth Cordage, nevertheless, seems to have adapted itself to the great changes which have occurred during its business life, for it has persisted for 125 years and seems still to have some vitality." Now, just one more bit, to show that workaday, brasstacks Bill has a nice change of pace: "One cannot think of the sea with all its romance without thinking of rope, and no marine symbol is complete without rope! And there are interesting land uses, too: the cowboy's lariat, the mountain climber's line, the steeple-jack's tackle, and, there used to be, the hangman's noose." Congratulations, Bill, you truly "know the ropes."

George Clark, II, is vice-president and chief engineer of the Formica Company of Cincinnati. He was made chairman of the Society of the Plastics Industry this summer, after having served two years as president of this society. — William J. Mooney, IV, died last June at his home in Wellesley. Bill was an architect and a member of the American Institute of Architects. Thomas A. Dutcher, VI, passed away on June 5, 1948, at Los Angeles. — Larry Hart's home address is now 4 Lake Avenue, Alger Court, Bronxville 8, N.Y. Lionel Lemaire's address is Navy Army and Air Force Club of Victoria, 7 Alfred Place, Melbourne, Australia. He is honorary secretary of the club. C. P. Wetherbee, VI, lives at 221 North Sproul Road, Broomall, Pa. William S. Gilmore's, IV, new address is Woodhaven, Paget, Bermuda. Pat Horgan, IV, is at 1005 Jackson Street, Denver, Col. — FREDERICK D. MURDOCK, *Secretary*, Murdock Webbing Company, Box 788, Pawtucket, R.I.

• 1914 •

A very pleasant letter has been received from the wife of the late Porter Adams in regard to the item appearing in the final issue of the *Fourteen Pointer*. Mrs. Adams wrote that she felt that the method of spending a portion of Porter's legacy to the Class was exactly what he would have liked, and that she was very happy to hear about it. She also sent a photograph of the new Thetford Academy building which stands on the Thetford, Vt., site of the former Porter Adams house. It was due to her own generosity that this land was made available immediately to the Academy, of which Porter had been a trustee. — One of the Alumni Day events not previously reported was a tea in honor of Mrs. Maclaurin. The affair was arranged through How Taylor of our Class, and Mrs. Maclaurin was presented with a pair of antique silver tureens. There were several '14 men present. It was very obvious that Mrs. Maclaurin was deeply touched by this honor to her in appreciation of what she had done for the students during the period when her husband was president of the Institute.

Two generals in our Class have recently made the headlines. Many of you have, unquestionably, read about the implied association of Alden Waitt with the investigation going on in Washington under the title of "five percenters." All class-

mates will be very happy to hear that Alden was fully cleared and that there was no association whatsoever with this group. It has been your Secretary's privilege to see some of the testimony, and there isn't the slightest doubt. The only way with which Alden was associated in any manner with the investigation was that he had dictated a requested memorandum for use at the White House regarding the suggestion that he apply for a continuation of his position as chief of the Chemical Corps. This memorandum had been written in the office of a friend with whom he had gone to school at Medford, Mass., and who is now a Washington Representative. Later, this individual was under suspicion, and in the usual "trial by headline" the correspondence was pulled out and it was immediately assumed by one of the investigators that there must have been some association between Alden and the person under investigation who, incidentally, has not had any charge substantiated against him. Alden's four-year term as chief of the Chemical Corps terminated in November, at which time he would normally retire. After being cleared, Alden has elected to retire.

Our other general is Joe Wood, who has retired after a brilliant career in the Corps of Engineers. It will be recalled that Wood was a student in Architecture at the Institute, and now that he has retired he has gone back to school. He is at the Harvard Graduate School of Design and is planning, on completion of his course, to go into industrial work in the construction field. During his military career Joe has seen service throughout the world, and at one time worked on the construction of the defenses at Corregidor. He received considerable publicity when, as a colonel, he organized the 41st Engineers, the first regular Army negro regiment. He was later assigned to the African Theater in command of a tank force. This was followed by service as a brigadier general and assistant commander of the 92d Infantry Division in Italy. He later was promoted to the command of that division. His last service was as assistant chief for logistics in the office of the chief of the Army Field Forces.

Your Secretary has recently received a letter from Paul H. Hsu who, when he wrote, was located at Kunming, China. Hsu tells us that great unprecedented historical changes have taken place in recent years, and it was necessary for him to leave his home city of Shanghai, arriving in Kunming as a refugee. Hsu further states that he has organized a small company, making small mechanical parts as well as soaps. Heavy industries are no longer profitable in China, and his company more recently has had to abandon some of its previous activities and is currently manufacturing matches. Although Hsu sent a check for his class dues, he writes that he has lost all his personal things and savings during the last War. He hopes to be able to struggle along and get a new start. Little do we know of what takes place in the lives of some of our classmates scattered throughout the world.

Your Secretary is very sorry to have to report that our honorary classmate, William Jackson, has had quite a severe illness and as this is being written is still confined to a rest home. There is no information as yet as to when he may be able to leave. — H. B. RICHMOND, *Secretary*, 275 Massachusetts Avenue, Cambridge 39, Mass. Ross H. DICKSON, *Assistant Secretary*, 126 Morristown Road, Elizabeth, N.J.

• 1915 •

Here's the big news and noise you have been waiting for. Our 1950 reunion will be held at Coonamessitt Lodge, North Falmouth, Mass., June 9–June 11, with a return to Boston for Alumni Day on Monday, June 12. About 75 miles from Boston on the edge of Cape Cod, this is an ideal place with all the facilities from golf to gulp for an enjoyable and successful 1915 reunion. The annual Stein-on-the-Table Dinner will be at the Copley Plaza Hotel, Boston, Monday evening, June 12. The Class will give a cocktail party at the Copley on Monday from 4 to 6 for the ladies — everyone is invited. The reunion at Coonamessitt will be stag. This ideal arrangement permits a pleasant week end for classmates, a return to M.I.T. for Alumni Day on Monday, the class cocktail party for ladies, and the Alumni Dinner Monday evening. Committees and sectional representatives have been appointed and you'll soon have the first announcement of the plans. Get ready, put your calendar in order and be there. Max Woythaler and Weare Howlett did a monumental job completing these arrangements and orchids from 1915 to them for their tireless efforts and intense interest.

The big business of a class dinner at the Boston Yacht Club on October 21 (arranged through the privilege of Bill Brackett's membership) was the presentation of the committee's report on the reunion by Max and Weare and the reading of Gene Place's report on "Fifty Thousand Dollars for 1915 in 1965" which will be printed and commented upon in the January issue of The Review.

Another splendid attendance of 26 classmates and guests enjoyed a delicious dinner and an evening of storytelling: "Captain" Bill Brackett, Whit Brown, Sam Eisenberg, Reggie Foster, Don Fowle, Louie Gale, Abe Hamburg, Clive Lacy, Larry Landers, Azel Mack, Jack Mohr'50, Archie Morrison, Howard Morrison'14, Frank Murphy, Pete Munn, Charlie Norton, Wally Pike, George Rooney, Paul Fittz (George's guest), Chet Runels, Al Sampson (long time no see), Henry Sheils, Ed Sullivan, Speed Swift, Ned Waters and Max Woythaler. Long-distance honors went to Reggie Foster and Chet Runels, Lowell; Whit Brown, Concord; Al Sampson, Beverly; Ned Waters, Marblehead; Max Woythaler, Framingham; a fierce competition between Speed Swift, New London, N.H., and Charlie Norton, Martha's Vineyard, Mass. All grand fellows to come such distances to support the fine old 1915 spirit.

The good-looking Wally Pike teams up with Barbara and Virginia Thomas to have charge of registration and the ladies cocktail party on Monday. Barbara and Virginia have always been willing and ready to help 1915 and we all feel sure they will do their usual charming job on this committee. We are planning a class dinner in New York on December 2 to consult with classmates there and to appoint New York committees. Let's all get together to make this a big, successful, enjoyable and memorable reunion in 1950.

What hair does Henry Daley mean "gets thinner"? His has been thin, oh, so thin, for a long time: "Life goes on merrily, but not too merrily at times. The hair gets thinner and thinner, if that is possible. The family is all well. My oldest son, Henry, Jr., located in Buffalo after securing his master's degree at Technology in October, 1947, and has made me a grandfather twice over. He is with Linde Air Products Company. Tom graduates from Penn State this June. Bob, the youngest, hopes to enter Villanova this fall. The two older sons' education was interrupted by the War, both serving a 3-year hitch in the Navy. Henry came out as a 2-striper in the submarine service; Tom, a radar technician. My wife, Frances, is bearing up well under the strain of being a grandmother, and our only regret is that the grandchildren are 400 miles away from us, so we cannot see them often enough."

The M.I.T. glasses sales was a tremendous success; 85 orders for 301 dozen, including several from other M.I.T. men who wanted to become temporary members of the fine old Class of 1915 long enough to take advantage of this bargain. Again we must shower our thanks on Otto Hilbert for his generous and tireless effort in handling the details of this deal for us. Any profit will, of course, be added to the class exchequer. Deliveries were scheduled for November in time for Christmas gifts.

With his order for glasses, Herb Maxwell, 513 Kern Street, Taft, Calif., writes: "Through the years I have tried to place you as you were in 1915, but without success. During September, I was in Boston for a few days and had hoped to meet you again. Unfortunately, you were out of town. It may be difficult for Johnny O'Brien, George Rooney and Henry Sheils to place me but my regards to them when you next meet. Thanks for doing a bang-up job as 1915's secretary." Surely, all that lower element of Course I remember Herb well. — In the October, 1949, issue of *National Office Management Association* Gene Place has a long article on "Incentives are Inspirational — A Case History on Catalytic Agents for Getting Jobs Done Better." Gene is vice-president and manager, sales department of American Mutual Insurance Company, Boston.

It is sad to record the passing of another loyal classmate. William J. Rooney died on August 31 as a result of an automobile accident in Utah. Bill had been with the Department of Terrestrial Magnetism at the Carnegie Institution of Washington since 1924. Previously, he was a ballistics expert with E. I. du Pont de Nemours and Company, and then associate electrical engineer at the Bureau of Standards where he did research on the mechanical stresses in gun mounts. The past two months he had been doing field work in California, observing artificial seismic disturbances. Bill had been project director of the Naval

Ordnance Laboratory from March, 1941, through 1943 and was cited by the laboratory for his work on the proximity fuse. Another important wartime assignment was research on the location of submerged objects through the study of marine electric currents. A native of Waltham, Mass., he received an A.B. degree from Boston College in 1912 and a B.S. degree from M.I.T. He was a member of the Cosmos Club, the Holy Name Society of Sacred Heart Church and several scientific societies. Bill never married. He is survived by two brothers, James I. Rooney of Arlington and John Rooney of Boston, Mass., and two sisters, Mrs. John J. Flynn of Waltham and Mrs. Mark Ryan of Manhasset, Long Island, New York. Our class sympathy to Bill's family.

And so endeth another column of news of our good classmates; to continue it, write something to "Help Azel." — AZEL W. MACK, *Secretary*, 40 St. Paul Street, Brookline 46, Mass.

• 1916 •

Our good Assistant Secretary takes most of the credit for the size of this month's column. His untiring efforts have produced a number of substantial replies which we shall reproduce in whole or in part herewith. But first why not a word about this fine fellow and his family for our first entry. Entirely fitting. Harold states that his daughter Dorothy graduated last June from Wellesley with an art and math major, topping it off with a visit to art centers in Italy, Switzerland, France, and England, accompanying a Wellesley College tour. His son Stuart, a junior at Technology, was one of two students selected from M.I.T. along with 19 other American and Canadian university students to serve as student assistants with the Weather Bureau on its summer patrol of the Arctic weather stations. With stopovers at Thule, Greenland, about 750 miles for the North Pole, and Resolute Bay, N.W.T., part of the trip included plowing through ice six to eight feet thick. Experiences at Thule included rugged hikes to the Greenland icecap and visits to the Eskimo village where natives live in sod-covered huts and their hungry sledge dogs prowl under platforms of poles where seal meat and skin kayaks are kept out of reach.

In response to a letter sent to Arthur Keller in the Hawaiian Islands, we had an informative reply not from the Pacific but from Buffalo. "Your letter of August 1 addressed to Honolulu has been forwarded to me. Three years ago, I became executive secretary of the Territorial Pension and Retirement Commission. The commission was authorized to do a considerable amount of research on pensions for government employees. All the work was completed by May 1 and offices closed. As business conditions in Hawaii were not good due to the strike of longshoremen, I decided to come east. At present, I am temporarily in Buffalo but expect to go to Scotland very soon. I expect to take up studies along the line of actuarial mathematics and pension plans in the University of Edinburgh and hope, after the completion of these studies, to return to the States and engage in the line of work that I have followed for the last three years. I have no children. I have not had time while in Hawaii to take up golf or other pastimes. I was in Honolulu during World War II and met many engineers, quite a few from M.I.T. This is the first time I have been away from the Territory since 1940."

Jimmy Evans, who seems to prefer a great deal of action to writing, says: "Forgive me for my continued silence. However, believe it or not, it's been due to quite heavy pressure of business activity. I seem to be burning up a lot of steam for the past 12 months. I am still with Johns-Manville, located in the Newark office, and would be very happy to hear from any '16 men who pass through town. I have seen Dutch Gaus, Bill Farthing and Steve Brophy. I am looking forward to spending some little time with Bill Farthing sometime later on this year in the interest of class activities — 1951 isn't too far away. It was certainly good to see the names of the various classmates in the recent issue of The Review. I expect to see Frank Ross this fall and will probably play golf with him."

And we have had a grand letter from Nat Warshaw, the kind that makes secretaries smile with glee; a Q and Q letter, both quantity and quality. Here is what he writes: "I find that now is as good as any time to answer your letter because I have just returned from a nice luncheon meeting of classmates at Thompson's Spa in Boston. Harold Russell telephoned me last evening and I promised him I would surely be there. I promised the boys at the luncheon that I would answer your letter today if I didn't do another doggone thing so here it is. Don't take this as a report of the meeting because someone else will do it better than I will. However, Emery Kemp, A. L. Giles, Paul Harrower and Harold Russell were there. Ralph Fletcher couldn't attend but he sent a representative who will, undoubtedly, report back to him. Personally, I think that this sort of thing is an ideal way in which to regain past associations which have been so dear to us. I happened to say that I thought our two secretaries have certainly done a marvelous job in putting 1916 back in The Review. Don't think for a moment that those of us from whom you do not hear regularly do not appreciate the work you are doing. We certainly do! It means a great deal to read the once-familiar names again. About two months ago a fine, portly-looking gentleman walked into my office and for a moment I couldn't identify him. It wasn't for long, however. It was Warren Strangman. He lives in Charlestown; is still in the industrial insurance business and I surely couldn't be blamed for not recognizing him, as he didn't resemble the Warren Strangman I knew in 1916 in the least. We had a very interesting visit together. For the sake of the record and because you asked me, I'll give you as brief a résumé of the high points since 1916. Traveling backwards will be a little easier than starting from 1916. I organized the Materials Handling division at Market Forge Company about five years ago. This company is a very unusual organization as they are equipped to build just about anything anyone can dream up . . . and that we do. Incidentally, the head of the company is Leo Beckwith'35. We are also doing our share insofar as M.I.T. men are concerned because the New York manager of the Materials Handling division is Robert P. Rudy'37; Leonard F. Glancy'47, Bridgeport, is handling my sales in Connecticut; and Stanley W. Warshaw'44, my son, is handling sales in Boston. We also have a number of distributors scattered throughout the country who went to the Institute as well. It has been rather interesting to me to find that after 27 years in one industry, the industry has grown into a very well-developed factor in present day life. When I went with Lewis Shepard Company, incidentally, our own Henry B. Shepard was western sales manager of that company at that time, and his brother was one of the owners, the Materials Handling Industry was hardly an industry, even the term 'materials handling' was seldom applied to the work we did. I was with the Lewis Shepard Company as their chief engineer for 15 years. Along the way Henry left to start manufacturing golf balls. In 1937 I left them to organize the Service Caster and Truck Company of New England. I was the president and chief engineer and we really grew into quite an outfit in a fairly short time. In 1944, the company was absorbed by a Chicago concern and I didn't remain there very long thereafter. For a short time during the War I was doing consulting engineering work on materials handling and then came with the Market Forge Company. From time to time I have written articles for some of the technical magazines on Materials Handling. I have also become more active in the sales and distribution side of the picture. I was called in by a naval architect who designed the equipment for a new type of ocean-going cargo ship which had rolling decks to facilitate the handling of stowage of cargoes. They wanted us to design a wheel to support the tremendous loads carried in this ship. We built several hundred suitable wheels for this installation and, according to all reports, the entire unit was a great success and they expect it to revolutionize the shipping of goods.

"In regard to the family end, I have two sons. Stanley was a lieutenant, junior grade, in the Navy and spent much time in Manila. He is now our factory sales engineer in the Boston territory. Robert, 20, has just completed a year's training in the Tank Corps, also one year at Northeastern. Of course, I mustn't forget my wonderful wife Martha who is one of the fortunate persons who is able to combine her domestic duties with much outside interest. She is a member of so many musical organizations I can't begin to name them." Nat sent along a catalogue of his company which gives a pretty good picture of his end of the business, together with a 50-year anniversary book which covers the history of the company as a whole.

A recent prompt and welcome reply came from John Whitaker out in Pasadena, who writes: "I was sent to California in 1929 to help in setting up the 'talk' in talking pictures. Later I gravi-

tated to Vega Aircraft where I worked in design engineering during the War. After the War, I came to the California Institute of Technology's jet propulsion laboratory in Pasadena as a design engineer. My son and daughter have grown up here in California, and so far, I have two grandchildren. Incidentally, I had a spell of seven years with 'Mother Bell' in the transmission engineer's office of the Bell Telephone Company of Pennsylvania."

Jack Burbank continues as superintendent of the engineering and inspection division of the Travelers Insurance Company in Hartford. He writes: "I am still a member of the executive council of the Charter Oak Council of the Boy Scouts of America in Hartford, and a trustee of the Good Will Boys Club. All other outside interests except the Rotary Club of Hartford have been dropped. I have just returned from a 10-day trip which took me to Houston, Port Arthur, and Dallas, Texas, stopping in Oklahoma City on the return trip. George Petit of our Class is still working with me at Travelers. My oldest son James is married and lives in Portland, Maine. My daughter is married and lives in Wollaston, Mass. The baby of the family is almost 21 and is starting his junior year at Trinity College. We have a very comfortable spot for the summertime in Blandford, Mass., about 12 miles west of Westfield, Mass. Our comfortable 10-room home at 20 Walbridge Road in West Hartford is a bit too large for our family of three and any classmate would certainly be welcome when passing through Hartford."

Frank Hastie, a colonel in the Reserve, writes: "The most interesting things to me at the present time are what my young Hasties are doing, the hospital equipment furnished on the veterans' hospitals assigned to the Corps of Engineers for design and construction, and the progress of the three teams on which I bowl. John, my oldest, is a first lieutenant in the Corps and on temporary duty from Japan for amphibious training at Los Angeles. Frank, who graduated from O.C.S. in July is at the Field Artillery School at Fort Sill. Neal is en route to our highly esteemed neighboring institution of learning to start his sophomore year. Clem, who graduated from Andover in June, is in England starting a year's work at Christ Hospital on one of those international exchange scholarships. Cora (Mrs. Richard Myers) is enjoying married life in Philadelphia. The design phase of that portion of the Veterans' Administration hospital construction program assigned to the Corps of Engineers for accomplishment has advanced to the point where most of the projects are either under construction or already advertised. We have gotten off to a good start in the Army bowling league, winning our first six games. We do not have a sponsor yet in our commercial league and if any reader wishes to advertise in this area at a cost of about $50 including snappy shirts with his name on the back, it will be a pleasure to hear from him. It must be understood that we do not furnish any guarantee that the excellence of the firm or product to be advertised will be equalled by the performance of our team. However, we always try."

Herb Gilkey from Ames, Iowa, sent your Secretary one of those long, interesting, unsolicited letters which class secretaries dream about. Herb wanted us to mention the fall regional meeting of the American Concrete Institute to be in Boston in November, but as you can plainly see, this being the December issue, we couldn't quite make it. We hope all went well with you, Herb, and that you were able to notify as many friends as you could without our help. We should like to have assisted, but couldn't make it. There are a number of M.I.T. men in the Institute, including Herb of '16 and Bill Sandlas of '17. — A clipping from the September 1 Springfield *Union* shows a picture of Al Lovenberg and tells of Al's opening his own business as consulting engineer in the heating, air-conditioning, and refrigeration field. He was formerly with Carrier.

George Spooner sent us a reply from Des Moines in September. He left a position with a Boston firm of architects during World War I and entered training as a cadet for a commission as "an observer in those old-fashioned balloon affairs they used for artillery fire direction." He was on the front near Verdun when the armistice was signed. He is in practice with two engineering partners with himself as the architect of the firm. He continues: "Have two fine children, a boy and a girl, who are now both married. The boy is a chemical engineer living in Kansas city and the girl is a graduate Public Health nurse in Denver. Have a good set of golf clubs and a well-equipped basement workshop for woodworking. Have been quite a wanderer, often staying out a month at a time with both children and a movie camera. Have been busy getting out plans, and so forth, for two dormitories, community buildings and once in a while a church. Hear from Sam Lapham and E. M. Woodward'17 each year, and have seen Tom Holden when he has been in Des Moines. I have two nice children, a fine wife, a home that's too big for us now, an interesting profession that keeps me darned busy lately but will never make me rich; so, have no complaint coming and still belong to the Republican party with hopes!"

That does it for now. We had a good meeting at our Boston noonday luncheon on October 11 with Tom Berrigan, Harold Russell, Nat Warshaw and son Stanley, Tom McSweeney, Horace Burnham, and Al Giles. Al proposed a plan for continuing long life of members of the Class which we shall advance another time. Nat says: "Tell everybody they should write a long letter to Harold or Ralph like I did." Your actions speak for themselves, Nat. Everybody else, read this column and do likewise. See you next month. — RALPH A. FLETCHER, *Secretary*, Post Office Box 71, West Chelmsford, Mass. HAROLD F. DODGE, *Assistant Secretary*, Bell Telephone Laboratories, 463 West Street, New York 14, N.Y.

• 1917 •

Ed Warner has again received outstanding recognition for his contribution to aeronautics, having been selected to receive the Daniel Guggenheim medal and certificate for 1950 for "pioneering in research and a continuous record of contributions to the art and science of aeronautics," as announced by Glenn Martin, chairman of the Medal Board. "Dr. Warner is president of the Interim Council of Provisional International Civil Aviation Organization and has held many government posts in the aeronautical field. The Daniel Guggenheim Medal was created for the purpose of honoring persons who make notable achievements in the advancement of aeronautics. Provision for the medal was made in 1928 by the gift of a fund from the Daniel Guggenheim Fund for the Promotion of Aeronautics. Some previous recipients of this medal are Orville Wright, Boeing, Douglas, Martin, General Doolittle, Bell, Grumman."

Kid Cochrane was recently elected president of the Massachusetts Golf Association. — Charlie Gilliard has resigned his position as town engineer in Andover, Mass., after serving in this capacity for a period of 27 years. — Al Hegenberger has retired from the Army with the rank of major general. He has had a distinguished career in the Air Force. Many of the local crowd have pleasant memories of a party in his honor shortly after his epoch-making flight across the Pacific in June, 1927. Al's new address is Box 1 F, Route 1, Vienna, Va. — We learn from Nig Sewall that Lake Champlain is quite a nautical thoroughfare. In a recent cruise he saw boats from Sioux Falls, S.D., New Orleans, La., and St. Louis, Mo. — We are sorry to record the deaths of Reginald K. Fessenden and Henry G. Parker.

Joe Gargan was on the shelf for a few weeks with a mild coronary ailment. We are glad to report that he is back on the job. The shelf had no chance to get cold, though, for Lin Noyes climbed on it with an attack of tuberculosis. We quote from a letter which Lobby received from Mrs. Noyes: "Lin is very comfortable right now. His cough has cleared, and he has adjusted himself readily to his enforced inactivity as only he would do. He is receiving streptomycin treatments for a tuberculous bronchitis that must be cleared before they can collapse the right lung to give it the rest necessary for it to heal. This is about a three months' process, so we are both living each day as it comes, secure in the fact that he is receiving the best of medical care."

We hope that you were pleased with the second report of progress on the 50th reunion class gift. Through a typographical error, the name of A. K. Johnson was omitted from Group A. Your committee would be most happy if we could attain our goal of $100,000 by the end of this year. They hope that many of those in Group B will be able to transfer to Group A before then and that others will decide to join in this project.

Your Secretary met John DeBell and Harry Wansker at the recent annual meeting of the National Security Industrial Association. Your Assistant Secretary, who is writing the notes for this issue, is ignorant of the functions of this Association but the meeting was at the Wal-

dorf in New York, so it must be in the top bracket. — RAYMOND STEVENS, *Secretary,* 30 Memorial Drive, Cambridge 42, Mass. FREDERICK BERNARD, *Assistant Secretary,* 24 Federal Street, Boston, Mass.

• 1918 •

Saxton W. Fletcher, President of the J. O. Ross Engineering Corporation, has been elected president of the M.I.T. Club of New York. So if you are happy or unhappy about what happens to you next time you are at 115 East Fortieth Street, you'll know with whom to take it up. Waldemar S. McGuire has a promotion, too. Starting with a thesis titled "Anti-dimming Compounds for Gas Mask Lenses" he has gotten to be a full professor of Chemistry at Northeastern. As a student, he lived in Revere. Now he comes in from Quincy. Another chemical engineer, no less than the Lilly Varnish man himself, Thomas P. Kelly, who came to us from Jamaica Plain, after eight years of service, did not seek re-election to the Gardner, Mass., school committee this fall. Must mean that Tom's five children are all beyond that stage of education. What Tom told the paper was, "The pressure of business activity prompts this decision."

On August 11, L. Franklin Van Zelm, artist and cartoonist for the *Globe* Syndicate and the *Christian Science Monitor,* married Mrs. Marie Jeffery Miles of Mt. Vernon, N.Y. The ceremony was performed at Harrison, Maine, thus bringing a new chapter to a friendship which began in childhood. "There is a destiny that shapes our ends" you know. To fill in a little between these extremes, after three years with us at M.I.T., Van Zelm enlisted in World War I. With his bride he now lives at Summit Spring Manor.

William C. Foster, formerly Assistant Secretary of Commerce, quit that berth to go to Paris with W. Averell Harriman who had relinquished the Commerce portfolio in the Cabinet to become special United States representative to the Marshall Plan countries. As deputy to the Ambassador-at-large, Mr. Foster has the rank of minister. According to last reports, Bill should by now have been made deputy Economic Co-operation administrator. The *New York Times* says that although he has not been heard recently on the subject, Foster believes strongly that the United States, as the world's greatest creditor nation, must increase the volume of its imports to enable other nations to pay for the goods and credits they receive from us. As deputy to Mr. Harriman, Bill has had to work closely with the organization of European Economic Co-operation and his promotion to the post of deputy administrator here is calculated to strengthen the hand of the E.C.A. in dealing with the Marshall Plan governments on such pressing problems as currency and exchange revaluation and their domestic budgets.

Before his appointment as assistant secretary of Commerce, Foster was active in the committee for economic development, both as trustee, and as a member of its research and policy committee, in which capacity he was associated with Mr. Hoffman, who then was the organization's head. Antedating that, Foster was president of the Pressed and Welded Steel Products Company, Inc., of Long Island City, N.Y., and a director of the Wagner Machinery Corporation of the same address. He served in the Army Air Corps in World War I and holds the Medal for Merit for exceptional services in World War II during which he was in half a dozen Federal agencies, including the War Department.

The *New York World* awhile back carried an interesting article about Albert C. Walker, whom you, who have not seen him since, will remember as another chemical engineer, hailing from Denver instead of Revere or Jamaica Plain. The paper says: "If you can grow a better crystal, quartz or otherwise, the world will beat a path to your telephone company. At the Bell Laboratories, Murray Hill, N.J., Dr. Albert C. Walker and Ernest Buehler have grown a better crystal. The Western Electric Co. is turning out 40,000 pounds of them a year at Allentown, Pa. If one can be crystal happy, Dr. Walker's that. A tall, robust, graying and 50ish man, he talks crystals till they come out his listener's ears. Born in Denver, Colo., Dr. Walker learned about chemistry at . . . Technology. In 1923 Yale gave him a Ph.D. in physical chemistry. He turned to crystals from the Chemical Warfare Service. Better have it clear how important the crystal is to communication. It acts as sort of traffic cop for telephone conversations. Imagine 600 phone talks going on over two tubes of the coaxial cable to Philadelphia. Without crystals to guide them, they'd come out like the babble of 600 conversations in one. A phone call going out through a crystal of given frequency will find its goal only through a crystal of the same frequency which will pick the conversation out of the other hundreds using the same wires. Growing crystals is not brand new. But growing crystals to substitute for quartz that are better than quartz, is new. An accident played a part in bringing about their development. Two years ago a solution that Bell chemists were working on was allowed to cool. A mass of crystals formed in it, some of them clear enough to use as seeds for larger ones. One could get the idea Dr. Walker is making rock candy in his laboratory. In three large glass vats, four seed crystals rotate in a yellowish solution, first in one direction, then reversing, starting at 120 degrees Fahrenheit. For three months this goes on, the temperature going down half a degree a day, as the crystals grow 1/32nd of an inch daily. In three months each seed will have become a three-inch bar ready to be cut up and put to work."

On September 14, Charles E. DeLong died suddenly of a heart attack, suffered while in Boston on a business trip. A native of Melrose, for over a quarter century he had lived in Newton and had been active in real estate as well as insurance. — GRETCHEN A. PALMER, *Secretary,* The Thomas School, The Wilson Road, Rowayton, Conn.

• 1919 •

The Fitchburg, Mass., *News* of August 30 carried the following story: "Although the Gardner Tennis club has not been too successful in its starts this season, it has not been the fault of Roderic L. Bent, 53-year-old World War II veteran and M.I.T. graduate. Bent, father of two World War II veterans, has been the team's most consistent winner in spite of his age. Bent plays tennis regularly with his two sons, Gardner and Jack, both members of the Tennis club and he generally manages to hold his own. His last victory in outside competition was scored last Sunday when he licked Zarmair Shepard of Leominster."

Aubrey P. Ames, XV, writes that he retired from Standard Oil in 1947 and is now doing consultation work in engineering and business management. — Bernard S. Coleman writes that he was east in May doing a survey of the Mount Sinai Sanatorium in St. Agathe des Montes, Quebec. He has just purchased and is operating the Paradise Sanatorium and Hospital, 2415 South Weston Avenue, Los Angeles 7, Calif. — Received the following card from Blake Darling: "Have left the fire insurance business and now have a cattle ranch near Carson City, Nev. I have a grandson, age one year." — Harry Cikins writes: "Kind of a far cry from engineering but have spent the past 18 years selling, or trying to sell, life insurance. Find it very fascinating. Have three sons. Two picked Harvard."

Ray H. Bartlett writes: "My only change is that I am now spending most of my time in New England with headquarters in Boston. My son and his wife have presented me with a granddaughter so I guess time marches on." — Dick Coombs writes: "About the same as last year, nursemaid to 700 candy vending machines and finding it very interesting. Grandfather six times over, so am getting along in years. One beauty of Minnesota is getting plenty of chances for good fishing here and in Wisconsin. Some of you eastern fellows better try it out sometime. See Chuck Drew around town here now and then. Hope to get back east next year for a visit and do not expect I'll know the old place." We have been notified that Russell S. Palmer has moved from Garden City, N.Y., to 71 Shepherd Lane, Levittown, N.Y.

The *Alabama — News Magazine of the Deep South* of August 26, carried an article on Lt. Colonel William H. Bassett, Jr., present commander and deputy district chief of the Birmingham Ordnance District who states that this district is as capable as any other of producing finished goods. Toward that end, he and district chief William S. Rushton are endeavoring to put the area in position to place ammunition at about 50 per cent, other items at another 50 per cent. To do this, it plans no cut in ammunition production, intends to boost other items a long way upward. — EUGENE R. SMOLEY, *Secretary,* The Lummus Company, 420 Lexington Avenue, New York, N.Y. ALAN G. RICHARDS, *Assistant Secretary,* Dewey and Almy Chemical Company, 62 Whittemore Avenue, Cambridge 40, Mass.

• 1921 •

This fall you have received letters from Zam Giddens. It is hoped that your replies are en route and that neither letter will languish at the bottom of unanswered correspondence. If you don't have the return address at hand, address a reply to your Secretary at the address below for forwarding.

John J. Healy, Jr., Merrimac division, Monsanto Chemical Company, Everett, Mass., has been elected a member of the Board of Merritt-Monsanto Corporation, Lockport, N.Y., manufacturers of equipment for the plywood and veneer industry. John has been with Merrimac since 1921, serving as director of development prior to his appointment as assistant general manager, in which capacity he will continue. He is also general chairman of the arrangements committee for the Boston meeting of the American Institute of Chemical Engineers next June. – Alfred H. Fletcher, former director of the New York City Bureau of Sanitary Engineering, has been appointed director of the Bureau of Environmental Sanitation of the New Jersey State Health Department, comprising water supply, sewage disposal, housing and other factors affecting the health of communities. A native of Winchester, Mass., and a Navy veteran of World War I, Al received his bachelor's degree in sanitary engineering with us and later obtained a master's degree at Harvard. He has served as sanitary engineer with the Rockefeller Foundation and with the United States Public Health Service on mosquito control. He was instructor in sanitation at Columbia University and, for five years prior to his appointment to the New York Health Department in 1945, he was a member of the faculty of the Johns Hopkins School of Hygiene and Public Health. Al and Mrs. Fletcher are now living in Trenton, N.J. They have two sons, Alfred, a student at Washington and Jefferson College, and Floyd, who is in elementary school.

A. Royal Wood has been elected a corporator of the New Haven Savings Bank. Woodie is vice-president and treasurer of the United Illuminating Company of New Haven, Conn., and is active in the local Community Chest and Boy Scout Council. – Flemmon P. Hall, Director of Research, Ceramic Laboratory of Pass and Seymour, Inc., Syracuse, N.Y., was one of two recipients of the Ross Coffin Purdy awards given by the American Ceramic Society for outstanding contributions to the literature on ceramics. He is coauthor of a book entitled, *Phase Diagrams for Ceramists* and was one of the principal speakers at the annual meeting of the Society, of which he is a fellow and former officer. A graduate of Vanderbilt who received his master's degree with us and a doctorate from M.I.T. in 1925, he had previously been associated with the Bureau of Standards and the Standard Oil Company.

David O. Woodbury, newest member of the secretarial committee, was first over the line this month with a letter from his new location, 4835 Crown Avenue, La Canada, Calif. A confirmed Californiac, Dave is building a house despite the writings of Eric Hodgins'22 in the "Mr. Blandings" case and says, in part: "We have bought a piece of land on the mountain slope above Pasadena and will eventually be in possession of (1) a view difficult to surpass, (2) fine, thin air, but enough to breathe, at 1,700 feet elevation, (3) a new community which seems to be filling up with nice people, (4) 13 olive trees in full production, (5) thousands of grape vines, all bearing, (6) thousands of dollars' worth of bills, all due. I have just published, through the National Electrical Manufacturers Association, a small volume, *The V. I. Story*, which is an account of varnished insulations and their many uses in electrical engineering. This is the deepest into technical writing that I have ventured since losing a contest with Steinmetz under the auspices of the engineering department of the Pacific Telephone Company in 1923. But I have lightened the picture a little by reading proofs on my tenth book, *A Measure for Greatness*, published by McGraw-Hill this fall. It is a biography of Edward Weston, the electrical instrument pioneer, and should be read by everyone who owns a Weston light meter. I am also writing short stories. One was published in the September, 1949, *Argosy Magazine* under the title of 'Sub Down – Diver Wanted.' A further venture this spring in the shape of a cover story for *Collier's* called 'Behold, the Universe!' has blossomed into a *Reader's Digest* piece, published in August under the same title. For the rest, I have 12 or 15 lectures during the winter on 'Atomic Energy for Peace,' and 'The Palomar Telescope,' hereabouts around Los Angeles and as far north as Spokane."

New addresses have been received for W. Robert Barker; Mark L. Ireland, colonel, U.S.A., retired; Edward M. Richardson; Harold E. Smyser, colonel, U.S.A.F.; Charles E. Thornton; and Eliot Underhill.

John W. Barriger, President of the Chicago, Indianapolis and Louisville Railway, is called the "disciple of superrailroading" and his startling accomplishments in 30 months of transforming the Monon from "two streaks of rust" into a streamlined, Diesel-powered line equal to any in the nation are said to presage a golden age of railroading yet to come in a long illustrated article appearing in *Railroad Magazine*. The hundred-year-old line received its nickname from the town of Monon, Ind., where the main lines cross. The name is from an Indian word meaning "running swiftly," which aptly describes the road today. Entirely dieselized, freight and passenger trains run on timecard schedules, affording overnight delivery from any point on the 541-mile system. Heavy steel is being laid, curves straightened, grades leveled and centralized traffic control being installed. Passenger revenues are up, shippers are flocking back and the morale of the employees is tops. The article is a glowing tribute to Jack's sound engineering and business principles developed in his 30 years of railroading, and to the very human approach which has endeared him to coworkers and customers alike.

John R. Hardin, colonel, Corps of Engineers and United States district engineer for the New Orleans district, was feted at a testimonial dinner as "a great friend of New Orleans" and presented by the mayor with the key to the city on the eve of his transfer to Chicago to take charge of the Great Lakes division. Credited with starting some 12 major projects in less than three years in New Orleans, he had previously served as deputy to the president of the Mississippi River Commission. He was graduated from West Point and M.I.T. and saw service in both world wars. In the last war, he was successively executive officer for the construction division of the Army and deputy chief engineer of the European Theater.

Douglas M. Burckett, electrical engineer of the Boston and Maine Railroad, is the subject of an illustrated article in the Cambridge, Mass., *Chronicle-Sun*, which Chick Kurth has sent us. Doug is the president of the Appalachian Mountain Club and, appropriately, lives on the highest peak in Cambridge, 99 feet above sea level. Credited with originating ski trains, he is also president of the United States Eastern Amateur Ski Association and busy with arrangements for the first world ski championships to be held in this country next February under auspices of the Federation Internationale de Ski. Preceding his many years with the Boston and Maine, Doug once was in the Forest Service in Montana and spent some years on hydraulic surveys in the northwest, climbing mountains and skiing for both business and pleasure. Mrs. Burckett is also a skiing and mountain climbing enthusiast and it is expected that daughters Jennifer and Pamela will excel in these sports.

Abram E. Watov is reported to have qualified for appointment as chief of the testing section of the purchase bureau, New Jersey State Treasury Department, Trenton, N.J. Announcement has been made of the marriage of George A. Whipple'51, to Hope Auchincloss of New York. He is the son of Mr. and Mrs. Jack Van Horn Whipple of New York. Frances Malone, daughter of Captain William J. Malone of the Navy's Construction Corps, was graduated from Mary Washington College of the University of Virginia. Miles Zoller, Vice-president of the Eagle-Picher Company, is busy with the newest of a line of home comfort devices, a large volume air changer which is reported to have supplanted the conventional attic fan.

A very Merry Christmas and a most Happy New Year to you all. – Carole A. Clarke, *Secretary*, International Standard Electric Corporation, 67 Broad Street, New York 4, N.Y.

• 1922 •

The Boston *Herald* of October 7 reports that Brod Haskell was married in the Congregational Church at Greenfield Hill, Fairfield, Conn., to Mrs. C. Frederic L. Stead, the former Ruth Harvey, daughter of the late Mr. and Mrs. Arthur Carroll Harvey of Wellesley Hills. Brod, who is vice-president of the Guaranty Trust Company in New York, and his bride will make their home in New York City and Greenfield Hill. – Bill Russell, President of the National Apartment

House Owners Association, presided at the annual meeting of the association held in Boston at the Hotel Somerset in October. – Clarke T. Harding has been appointed assistant chief engineer of the Esso engineering department of the Standard Oil Development Company. Harding lives at 126 Wilder Street, Hillside, N.J.

A substantial number of the members of the Class are actively engaged in the M.I.T. Development Program. Those on the working committee in Region I are: Minot Edwards, Albert Rairden, Fred Dillon, Bob Brown, Ted Miller, A. K. Nicholson, Ray Miskelly, Walt Saunders, Bob Purinton, Donald Laughlin, and Norman Randlett; Region II: Dunc Linsley, King Crofton, Whit Ferguson, and Larry Davis; Region III: Harold Humes; Region V: Ed Ash; and in Region VI: Horace McCurdy, Emerson Spear, and Barrett Hindes.

Bill Elmer is now back in Boston working for the Wheeler Reflector Company where he is in charge of the street lighting department. – One of your Secretary's Boston scouts reported seeing Ab Johnson at the Michigan-Army game at Ann Arbor with his daughter, Joanne.

New addresses: Harold A. Stockbridge, 1725 Wilson Street, Chicago, Ill.; Yoland D. Markson, in care of Markson Brothers, 241 South Beverly Drive, Beverly Hills, Calif.; Louis C. Reynolds, Seneca Turnpike, Manlius, N.Y.; Otis C. Angier, 955 Bay Esplanade, Clearwater, Fla.; Platt C. Benedict, Room 516–520, 15 DeVilliers Street, Johannesburg, South Africa; Roy W. Ewertz, Mayorazgo 825, Mexico D. F., Mexico; Edwin J. Purcell, 20 East 17th Street, New York, N.Y.; E. Allan Reinhardt, in care of H. F. Weston, Jr., 174 Walnut Street, Newtonville 60, Mass.; Charles G. Rudderham, Post Office Box 1106, Minneapolis, Minn.; Fred W. Woodbury, Jr., 20 Conklin Avenue, Binghamton, N.Y.; Herbert A. Hickey, 2402 Calumet Court, Lincoln, Neb.; Harold E. MacDonald, Household Finance Corporation, 919 North Michigan Avenue, Chicago, Ill.; Dr. Clarence L. Scamman, Longwood Towers, Brookline, Mass.; Donald F. Carpenter, 3414 Nemours Building, Wilmington 98, Del.; Brian Mead, Standard Oil Company, 30 Rockefeller Plaza, New York, N.Y.; Wesley G. Thompson, 2338 Berwick Boulevard, Columbus, Ohio; William B. Elmer, 113 Pinckney Street, Boston, Mass. – C. YARDLEY CHITTICK, *Secretary*, 77 Franklin Street, Boston 10, Mass. WHITWORTH FERGUSON, *Assistant Secretary*, 333 Ellicott Street, Buffalo 3, N.Y.

• 1923 •

If you have not already mailed in your ballot for a new set of class officers and indicated your approval or disapproval of the proposed class constitution, please do so at once. It is quite important that we have a new set of officers in order that they may be thinking about plans for our 30th reunion. Such plans, these days, have to be started several years in advance.

The president of Trinity College in Hartford announced in September the promotion of D. G. Brinton Thompson to associate professor of History. Dr. Thompson has taught at Trinity for four years and has been acting chairman of the history department during the past year. He was a business and advertising executive for 17 years before turning to historical scholarship and teaching in 1941. He lives in West Hartford with his wife and three children. – HORATIO L. BOND, *Secretary*, National Fire Protection Association, 60 Batterymarch Street, Boston 10, Mass. HOWARD F. RUSSELL, *Assistant Secretary*, Improved Risk Mutuals, 60 John Street, New York 7, N.Y.

• 1924 •

These class notes are written so far in advance of publication that it seems a bit previous to think about the happy Yuletide Season. However, time flits, so best wishes to you all for Christmas and the year ahead. May it carry all of you still closer to those goals you set up for yourselves in your replies to that 25-year questionnaire. – Bill Robinson was in Boston recently, headlining a General Electric lamp show at the Ad Club. We didn't get over to hear him, but the billing sounded pretty spectacular. "Horizons Unlimited" was his subject, and it covered the pre-eminent position of American industry, the challenge on the left, the strategy to overwhelm it, and the prize of the future. His talk was followed by a Light Sorcery Show. – Martin Buerger, Professor of Crystallography at the Institute, has just come up with a novel device. It's a "fly's eye"! Actually, a multilens lens to be used in making repeat images of crystallographic patterns – or anything else for that matter.

Latest member of the Class to be appointed a member of the Alumni Council, governing body of the Alumni Association, is George Knight. He is listed as an alternate. Gardner MacPherson, for the last few years in the American Embassy at Rio, has crossed the Atlantic. He is now attached to our embassy in Paris. Sounds like two choice assignments. Ralph E. McShane, captain, U.S.N., whose wartime duties included that of logistics officer of the Western Naval Task Force prior to and during the invasion of Normandy, has come back to New England. This summer he assumed command of the Portsmouth Naval Shipyard.

Under the headline "Tokyo Flier Feasts" a story in the Atlanta *Journal* tells of a visit made to Blue Springs Farms by Mr. and Mrs. Jimmie Doolittle last summer. The reporter did a nice publicity job for the resort: "they were treated to luncheon in the fabulous Blue Springs manner," and so on. Jimmie, Jr., incidentally, is following in his father's footsteps. He's doing graduate work in Aeronautical Engineering at the Institute. By now, City Councillor George E. Parker will know whether or not he is the new mayor of Newburyport, Mass. Sounds as though George was pulling all the stops. His explanation of the advantages of spending so many years away from home: "Just as an artist needs to step back from his canvas in order to gain perspective and color tone – my absence lent me a perspective which those at home might have missed." That ought to do it!

It is with regret that we report the passing of Frank W. Smalley on August 24 in Savannah, Ga. A chemist with the National Nu-Grape Company for 25 years, he was assistant chief chemist at the time of his death. Frank was a transfer from Georgia Tech, and took Chemical Engineering here. A member of the American Cryptogram Society, he was a decoding consultant during the late war.

Here's an interesting item from *The Tech* of 28 years ago, just after the end of our first term: "Second term finds 165 men missing. Dean Talbot admits that the present method of eliminating students is unsatisfactory, since many men who receive Vote Ten later prove to be better in the world of commerce than those who successfully pass their examinations." Whether that's a reflection on the method or on the "world of commerce" is open to debate, but more than one member of our Class has proven the wisdom of the Dean's remark.

Is Artist Parker a mayor? Is Representative Atherton a Senator? Is Carl Vicario still in the saddle at Saddle Rock? Watch this column next month for the hot post-election news. – HENRY B. KANE, *General Secretary*, Room 1–272, M.I.T., Cambridge 39, Mass.

• 1926 •

Your Secretary recently had a nice visit with Bill Cook whom he had not seen for 20 years. Bill was recently made superintendent of the Side Leather division of A. C. Lawrence Leather Company at Peabody, Mass. Bill's family, as you may recall, was in the tanning business, and he has spent most of his time since graduation in the same business. He has not seen many of the Class since graduation and asked about George Edmonds, Arthur Brockelman, Bill Vaughan, Bernie Morgan and others. Also, we recently stopped in when going through Concord, N.H., and met Sydney Dach. Sid is manager of the Sears Roebuck store in Concord, which is a large unit, employing approximately 100 persons. He has been with Sears for 17 years and has been in Concord most of this time.

Congratulations are in order for several classmates this month. Topping the list is our Class President. Dave Shepard has been made assistant to the president of Standard Oil Company of New Jersey and is coming home after all these years. We had a news release about it but wrote Dave for details concerning his return and will quote directly from his letter: "Your note was waiting for me when I got back to the office from the fine Shepard family holiday in France. I am here in London for three or four days before sailing for New York, where I am due to arrive to take up the new job by the middle of September. I shall be working at Rockefeller Center in New York and will certainly be having busy times with the new job. We have been lucky enough to rent (yes, I said rent) a house in Bronxville, and are especially pleased that we can thus settle down more quickly than would be possible if we had to find a house after arriving in the States. Kay and our two children are to stay on this side until late October, but we shall all

be together again about the first of November in Bronxville. I am certainly looking forward to much more frequent chances of seeing you and others in the Class."

We also congratulate Martin Walter who has been elected president of New Bedford Cordage Company, New Bedford, Mass. Martin has been with the company since graduation, starting in the experimental department, becoming mill manager in 1928, a director in 1938, vice-president in 1940 culminating in his recent presidency. An announcement tells that Roger MacDonald has been named plastics service representative for the New England and eastern sales district of the chemical division of Koppers Company. Salutations, Mac, and drop in when you come to Boston. Barney Billings recently joined the Arlington Mills organization at Lawrence, Mass., as assistant director of their laboratory. Phil Mancini is now director of Public Works for the state of Rhode Island. He has a swanky letterhead with the State Seal on it, and so on. He is responsible for roads and bridges, aeronautics, public buildings, harbors and rivers, automotive equipment and business management – looks like he might be a good friend to have if one gets a parking ticket in Rhode Island! Congratulations also to Bob Dawes who recently was elected president and treasurer of Thomas Taylor and Sons, Inc., Hudson, Mass. Bob succeeds his uncle who passed away this summer and, thereby, becomes the third generation of his family to head this concern. Most of us are familiar with one product manufactured by his company since Bob has kept the class in garters and shoe lacings for the past 20 years.

Congratulations of a different sort to Richard W. Frost who took Dorcas Paul as his bride recently. Dick is a draftsman with Stone and Webster in Boston. The couple will reside in Belmont.– We note in a newspaper clipping that Earl Wheeler has new offices in Hartford, Conn., at 15 Lewis Street. Earl's contracting business appears to be thriving, having completed 12 elementary schools in Connecticut during the last four years. – Marron Fort has tossed his hat into the political ring in Newburyport, Mass., where he is a candidate for election as councilor-at-large. Marron is general manager of the A. and G. J. Caldwell Company in Newburyport (New England rum) and also is technical director for the Frank Jones Brewery at Portsmouth, N.H. – Pink Salmon recently received a letter from Al Ortenblad in Rio, whose letterhead is Ortenblad, Locke and Comp. Ltda, Engenharia E Construccoes. I guess you can translate that one even without knowing Spanish. Al was a graduate student in our Class and Pink has already contacted him concerning our 25th reunion. It's a long way, so you had better start laying plans, Al!

And, speaking of our 25th, things are moving along. We reported last month that Al Dolben had accepted the chairmanship of the reunion. Now we can report that Al has been to Osterville and has signed up the Wianno Club for 1951. Our 20th reunion was such a success there that we did not consider another location. Al checked with Jim Killian to make sure that his schedule would dovetail, so we can even name the dates! The year, 1951; the month, June; the days, Saturday and Sunday, the 9th and 10th. Since Alumni Day at Cambridge now takes place on Monday, this will allow us to return and take in Alumni Day on June 11. Al is getting his committees organized, and there will be more to report soon.

You know, fellers, 30 days roll around awfully fast when it comes time to get these notes in; so, if any of you can send along some news or gossip, it will really be helpful. A number of the Class has done this already and that's why we have notes this month. Keep them coming. I want to see if I can get bawled out by The Review editors for taking up too much space! – George Warren Smith, *General Secretary,* E. I. du Pont de Nemours and Company, Inc., Room 1420, 140 Federal Street, Boston 10, Mass.

• 1927 •

The mail bag is not as heavy as it was last month, but there are several items of interest to us all. The following letter has been received from C. H. Tedford who is manager of Distributor Stores for Butler Brothers in Baltimore: "They used to say 'join the Navy and see the world'; it should be revised to 'work for Butler Brothers. . . .' I was in the headquarters office in Chicago from the fall of 1946 to the spring of 1948, during which time I got in plenty of travel from border to border, and coast to coast. Then as assistant to the general sales manager, I was located in the New York office for 15 months, being transferred to the Baltimore House this past June as manager of Distributor Stores. These stores are the 350 Ben Franklin and Federated Stores in the 17 eastern states. My supervision includes operating, merchandising, sales, promotion, development, and so on. Surely hope I can get settled down here for a while and get acquainted with some of the 'old gang' again."

Recently the *Transcript-Telegram* of Holyoke, Mass., had an item to the effect that Kenneth E. Smith had been appointed manager of the North American Rayon Corporation at Elizabethton, Tenn. "The company is one of the larger producers of rayon yarn for the textile trade and rayon cord for tires. Mr. Smith joined the company when it began production in 1927 and has been with them continuously . . . except for time out for war service. He began as chief chemist and was production manager when he enlisted for the war. So great was the demand for cord for tires on the B-17 and B-29 bombers, the latter just making an appearance, that Mr. Smith was detached from the Chemical War Service and assigned to supervise the construction of a new rayon cord plant. At the end of the war he was retired with the rank of major."

A very interesting letter from F. A. Canada reads as follows: "All of us are supposed to develop one phobia or another in these years of psychiatric strain. My particular phobia is against writing and it has kept me out of contact with M.I.T. and the boys since 1937. A few days ago, however, I felt nostalgia and dropped a few lines to the head of the Civil Engineering Department and, as a result, I've been flooded with correspondence both from Technology and from a great many good old friends. It has certainly felt good and I promise to be less silent in the future. Unfortunately, it is very difficult to send money out of Spain at present and it has been so for a long time and will probably continue to be so, this being the reason which has prevented me from sending contributions to the Alumni Fund and getting The Review in return. They have been kind enough to send me the May, 1949, issue from which I've learned all about Dr. Killian's inauguration as president. As to me there is very little of interest about my activities. In 1935 I entered Philips Iberica, S.A.E., the Spanish branch of the N. V. Philips' Gloeilampenfabrieken of Eindhoven, Holland, taking care of radio service throughout Spain, with residence in Madrid. When, in 1936, civil war started here, the country was divided in two fighting zones and I was caught in the red (Madrid) zone for eight months. After those eight months I was lucky to get out and step into the white (or blue) zone in San Sebastian, where I spent five years as technical head of a radio set factory which Philips started in Irun, a little frontier town 10 miles from S.S. In 1941, when our internal war was over, but World War II was going full blast, I was transferred to Barcelona to start a much larger factory of receivers and I remained there as head of the laboratory until 1947, when I was shifted back to Madrid as techni-commercial head of this concern. And that is my actual job and a very good one at that. The funny part is that it has nothing to do with civil engineering and I always say that for a Course I man, I make a pretty good Course VI engineer. I might add that I have been married for 15 years and have four children, two boys (13 and 3 years) and two girls (11 years and 9 months)."

Jack Herlihy, Vice-president, Operations, for United Air Lines is quoted in the *Saturday Evening Post* of June 11 in an article entitled, "How to Stop Air Travelers From Squawking." "Jack Herlihy of United Airlines puts it this way, 'If you don't hear about Monday's emergency until Tuesday, youngsters down the line are going to make million-dollar decisions that the brass ought to make. Tuesday is too late in this business.' "

Prior to World War II, when Alumni Day was held on a Monday, most class reunions took place the preceding week end. Fortunately, the Alumni Association, with the co-operation of the Copley Plaza (where the banquets will be held) has been able to restore this prewar custom, which enables Alumni coming from a distance to conveniently attend their class reunions and the Alumni Day events. The next two Alumni Days have been scheduled for Monday, June 12, 1950, and Monday, June 11, 1951. – Joseph S. Harris, *General Secretary,* Shell Oil Company, Inc., 50 West 50th Street, New York, N.Y.

• 1930 •

Our sympathy is extended to the wife and four small children of Armand

Cloutier, who died as the result of a heart attack on September 10 in Providence, where he was employed by the Schmidt Electrical Company. In connection with the recent passing of Sanford Moss, we have received a letter from Joe Preble in which he pays tribute to the gallant two-year fight Sanford made in the face of a serious heart ailment. Joe is plant superintendent for Congoleum-Nairn, Inc., at Marcus Hook, Pa. He lives in Ridley Park and has two daughters, one who has just entered college and another a freshman in high school. Joe expects to be on deck at our 20-year reunion. He sees Carl Franz occasionally and reports that the latter is still solving the problems of pilot plant operations on new processes for General Chemical. Carl's home is in Forwood, Wilmington, Del.

Congratulations and best wishes go to John Schroeter, who was married in August to Madelene Tamblyn of New York. The Schroeters are living in Washington where John is comptroller of the military air transport services of the Air Force. The October issue of *Electrical Manufacturing* reports an achievement award to Hermon Scott for the design of a miniature sound level meter. Charlie Abbott's son is a first-year student at the Institute. He attended the Greater Boston Alumni Midwinter Meeting last February with his Dad and was hopeful at the time that he might be admitted. Jack Jarosh is on the staff of the Division of Industrial Coöperation at M.I.T. He has a son 12 years of age and a daughter who is six. Ed Mears and Deac Goodhue are with Dewey and Almy in Cambridge. Ed has three children ranging up to 14 years of age, while the Deacon is still maintaining his status as a bachelor.

We trust that you are bearing in mind the approaching 20-year reunion next June and are planning now to be there with your old classmates. Please send along any suggestions you may have for the affair and bring us up to date on your recent doings and those of the 1930 men you meet from time to time. — PARKER H. STARRATT, *General Secretary,* 1 Bradley Park Drive, Hingham, Mass. *Assistant Secretaries:* ROBERT M. NELSON, 2446 Iroquois Road, Wilmette, Ill.; ROBERT A. POISSON, 105 East 88th Street, New York 28, N.Y.

• 1932 •

After our absence from these columns for several issues, we have quite a bit of news for you. Many of you are probably involved in the activities of the M.I.T. Development Program and will be interested in the men from our Class who signed the register at the convocation last spring: H. H. Imray, Jr., F. W. Green, T. E. Sears, Jr., F. R. Morral, J. E. Meade, G. E. Murray, R. W. Berry, Joseph Welch, Jr., A. M. Marshall, A. A. Stewart, J. T. Kelton, and A. G. H. Dietz.

The many clippings we receive about our famous classmate, Carroll Wilson, swell our files. Last May at the M.I.T. Club of Philadelphia he is quoted as saying: "The application of engineering talent is one of the greatest needs in the atomic energy field at the present time." — Bob Semple is the new president and director of Wyandotte Chemicals Corporation. Prior to this move he was director of the general development department of Monsanto Chemical Company. Tom Regan of Winchendon was elected a vice-president of General Box Company last spring. Art Marshall is treasurer and general manager of Huck's Transfer, Inc., Springfield, Mass. The June issue of *Distributor's News* has as its lead article a story about Art and how "early local trucking concern grows into complete distributional facility."

J. Edward Philbrick moved in June from the Fore River Shipyard to the Portsmouth, N.H., Naval Shipyard. In Portsmouth, he will work on the design of air conditioning and ventilation of new submarines. Louis Vassalotti is in the news as the owner of the Riverside Sand and Gravel Company, Newton Lower Falls, from which a 12-ton cement mixer was stolen. John Loustaunau, chief electrical engineer, E. B. Badger and Sons Company, was nominated for chairman of the Boston section of the American Institute of Electrical Engineers. Al Dietz, Director of the Plastics Research Laboratory at Technology, is the editor of a new book, *Engineering Laminates,* published by John Wiley and Sons, Inc. Bob Tate presented a paper entitled, "Reconversion of the Liner S.S. *Lurline*" before the spring session of the Society of Naval Architects and Marine Engineers held in San Francisco.

Ebed Ripley was married last June to Louise Swallow of Manchester, N.H. They will live in Hingham and Ebed is employed by the United Mutual Fire Insurance Company in Boston. — Bill Whittemore teaches mathematics at the Everett High School and is active in the O.R.C., having been named commanding officer of the 1046th engineer topographic training battalion. — Don't forget the Alumni Fund! As we say each year, drop us a post card with some news. — CLARENCE M. CHASE, JR., *General Secretary,* 1424 East 7th Street, Plainfield, N.J. *Assistant Secretaries:* CARROLL L. WILSON, United States Atomic Energy Commission, Washington 25, D.C.; WILLIAM A. KIRKPATRICK, Allied Paper Mills, Kalamazoo, Mich.

• 1934 •

Stuart T. Martin, who is still known affectionately to his associates as Red, is now chief engineer of Sylvania Electric Products, Inc., electronic division. He is doing an excellent job of ironing out the problems connected with the manufacturing of radio tubes and other parts that go into radios and televisions. His chief hobby is teaching electrical engineering at the Institute where he holds the title of assistant professor. His home is at 43 Taylor Avenue, Dedham, where the present count of young Martins is three boys, Peter, Donald, and James. Another classmate who is following the pedagogical field is Henry N. Andrews, Jr., who was recently appointed acting dean of the School of Botany at Washington University by Chancellor Arthur H. Compton.

Wilfred D. J. MacDonnell was recently appointed assistant general manager of the steel division of the Bethlehem Steel Company at Johnstown, Pa. He joined Bethlehem Steel after leaving the Institute in 1934 and was assigned to the open hearth department; in 1936 he was named assistant superintendent of the Number 1 open hearth and served in that position until 1946 when he was appointed assistant to the general manager of the plant. In 1947, he was promoted to assistant general superintendent of the steel division and became superintendent of that division in the following year. He is a member of the American Iron and Steel Institute and serves on the advisory board of the Buffalo chapter, American Institute of Metallurgical Engineers.

John R. Newell, who was vice-president of the Bath Iron Works at Bath, Maine, was recently elected president of the Pine Tree Society for Crippled Children, Inc. The Rev. Joseph A. Hahn who has been stationed in the South China area is endangered by the break-through of the main Communist armies into Kwangtung and Kwangsi provinces. The Communists have outflanked the Nationalists' South China defense line at both ends of the provinces and are reported to be within 60 miles of several Maryknoll mission stations. Brother Hahn is a pilot, photographer and scientist, as well as being a missionary. Before entering Maryknoll he was a professional airplane designer and received a fellowship from Guggenheim Airship Institute.

Pete Barry, who commands the Naval Reserve Unit in Rochester, N.Y., recently ran for councilman-at-large in that city. We have not yet been able to find out how he made out. Andrew T. Dempster was recently appointed director of the health department in Detroit, Mich. He has held the position of associate sanitary engineer in the department since 1943. Nathan Goodman was married in June to Phyllis R. Oppenheim daughter of Mrs. Harry Oppenheim of Brookline, Mass. After a reception at the Copley Plaza, the couple left on a wedding trip to Mexico. Constant W. Chase, Jr., has sent us an announcement of the arrival of Constant W. Chase, 3d, 5 pounds, 11 ounces, on June 17. We will look for him in the class of '71 at M.I.T.

It is with deep regret that we announce the death of Leslie A. Skinner, colonel, U.S.A., on May 15, 1949. — JOHN G. CALLAN, JR., *General Secretary,* 184 Ames Street, Sharon, Mass. ROBERT C. BECKER, *Assistant Secretary,* Chile Exploration Company, Chuquicamata, Chile, S.A.

• 1938 •

On September 10, Giles G. Green became engaged to Jean M. Farrell in Flushing, N.Y. Giles is an assistant professor of Civil Engineering at Cooper Union. He holds the Bronze Star and was a major in the Air Corps serving in China. We hear from Don Weir once in a while. His company, California Camera, in Beverly Hills, which sells all kinds of photographic equipment and cameras, seems to be coming along very well. Following an intensive two-year course in engineering sciences, Major Samuel A. Steere, Jr., of 131 West Bataan Drive, Dayton, Ohio, was graduated on August 19 from the U.S.A.F. Institute of Technology, Wright-Patterson

Air Force Base, Dayton, Ohio. The Institute is the Air Force school to train officers for assignment in engineering, procurement and research and development activities within the Air Force.

Harry Saunders, one of our assistant secretaries, has some interesting sidelights to report from Chicago regarding classmates: Frank P. Wardwell moved to Louisville, Ky., about a year ago and is doing consulting engineering work with the American Air Filter Company. In the family, he and his wife boast a fine baby girl. Yale Brozen, who went on to get a Ph.D. degree in Economics, is now on leave from Northwestern University and is doing research work for the Social Science Research Council, part of the Rockefeller Foundation. After preparing a paper on the "Social Implications of Technological Change," he expects to be back at his teaching job with the University. Ted Burke is doing sales engineering work with the Vanadium Corporation of America in Chicago. He has recently returned from a three months' European trip to survey market conditions in England, France, Denmark, Germany, Austria, Italy, and Switzerland. He and his wife now reside in Evanston, and have one boy.

Bill Burrall is now supervisor of the electrical staff department with the Automatic Electric Company in Chicago. He is living in Glen Ellyn and has two daughters, age three and a half and six years. In his spare time he reports plenty of work on his recently purchased house. Robert D. Solomon, who left our ranks at the end of his sophomore year to become a medical doctor, is now in the department of Pathology at the University of Illinois. Formerly, he was engaged in cancer research, and also boasts an Army record in New Guinea and the Philippines.

We received an interesting clipping from the *Pittsburgh Press,* which you will all enjoy: "The ancient and celebrated rite of classroom cat-napping is being threatened at the Robert Morris School. An industrial engineer named Richard Muther is introducing his special system of insomnia-inducing instruction into one of the school's new courses. The course is one in industrial management for executives and fledglings. . . . Classes will be held two nights a week for the next two years. Since the companies are footing the bill, Mr. Muther has no idea of offering three hours of slumber for the brass. So he is applying a jazzed-up teaching method he hit on 10 years ago when he was teaching a mechanical drawing class of Turks. Experts say the system, based on a catchy series of prepared notes, can teach a student 20 per cent more in a given length of time. Students, who ordinarily lose a lot of learning while they're trying to write down what the professor has to say, only fill in the details on Mr. Muther's note sheets. Later they serve as loose-leaf reference books. He hit on his system when he finished . . . Technology and the school sent him to Turkey for a year. Mr. Muther passed out note sheets with catchy cartoons to illustrate main points. The Turks filled in the details in Turkish. In the Navy during the war, he improved his system while teaching industrial management and assembly-line technique. All he added, in effect, was English sub-titles to his illustrated note system. It caught on so well the Navy's still using it."

Paul Black, who was last reported working for Andrew Alford in the consulting business, now informs us that he is head of the equipment engineering group for Sylvania in Boston, involved in developing radar and computer equipment. He writes: "By a strange coincidence, Ross Cooper works next to me and is head of the mechanical design and construction group. He is living in Beverly Farms and has one boy and one girl running around his house. The morning train to work from Wakefield also carries Jack Bethel and Don Mitchell. We form an exclusive 'Class of 1938' in the first car. As you probably remember, Jack is still with Metcalf and Eddy and has two little girls to keep him busy evenings. Don is with Baker Chocolate, but I am not up to date on his vital statistics. All three of us are neighbors in Wakefield.

"At a recent Computer Symposium at Harvard, I ran across Matt Abbott, whom I have not seen for nine years. Matt was working for the Colonial Radio, a subsidiary of Sylvania, until last winter, but he is now working for W. S. McDonald in Cambridge developing electronic instruments. Matt also is a resident of Wakefield and is kept busy by two little boys. In an effort to get some activity started in the Class locally, a group of us got together in an impromptu organizational meeting early in October. Russ Coile, Norm Bedford, Jack Bethel, Don Severance and I were present. As a result of this meeting, a tentative date of November 29 has been set for an informal supper meeting. Details of this will be sent to the local members of the Class and we hope to report a successful meeting in a future issue of The Review." We want to take this time to wish everyone a very Merry Christmas and to wish the best for all in 1950. — Albert O. Wilson, Jr., *General Secretary,* 32 Bertwell Road, Lexington 73, Mass. Richard Muther, *Assistant Secretary,* Methods Engraving Council, 822 Wood Street, Pittsburgh 21, Pa.

• 1945 (10–44) •

Our first 5-year reunion was held this past June at the ballroom of the Hotel Sheraton in Boston. A small congenial group made it a gala party. Among those attending were Bill and Mrs. Kalb, Walt and Mrs. Gray, George and Mrs. Wilson, Ed Peakes, Scott Carpenter, Les Brindis, Johnny Granlund, Henry Moore, Bob Horrigan, Warren Harwick, Al Shelby, Jim Angell and myself. A vote of thanks for a job well done should go to the reunion committee consisting of Jim Angell, Johnny Granlund, Ve Granlund and Al Van Rennes.

All those attending have more than gotten their feet wet in their chosen careers. Ed Peakes is doing sales engineering at G.E. Meter and Instrument in Lynn. Scott Carpenter for the past year has been doing development sales work for Henry L. Cabot, Inc. Les Brindis is managing his own shoe manufacturing plant. Henry Moore is well on his way toward a doctor's degree for which he is transferring to Wisconsin University. Johnny Granlund is also studying for a doctor's degree and at the same time is working with the Division of Industrial Coöperation at the Institute. Bob Horrigan is teaching at Yale. I just recently heard that he has passed his doctor's examination and has become engaged to Marion F. Phillips of Yonkers and Columbia University. Bill Kalb has established a reputation in selling industrial filters. Jim Angell, your Assistant Class Secretary, is very close to his doctor's degree at Technology and on August 29 announced his engagement to Elizabeth Rice of Staten Island and Wellesley.

We were fully prepared to accommodate about a hundred more persons. More than 900 invitations had been sent. Part of the explanation of such a poor attendance may be that many of your classmates consider themselves members of the class of '45 which was our original class number. Those who reasoned that way may be expecting the 5th reunion next June. They will be interested to know that they have not lost out completely. Next June, I will run a cocktail party in my suite at the Hotel Sheraton on the afternoon of the Alumni Day Banquet. You will hear more of this later. Another group we missed were those fellows who started in our Class and were taken by the armed forces. Most of them have graduated in the classes of '46, '47 and '48. We would certainly like to see them revert back to our class group of 10–44; and if not that, then at least attend our future reunions. I know we would all like to see them.

We heard from Johnny Hull just before the banquet. He was writing from the Munich-Bavaria to be remembered to all his friends at the reunion. Johnny, incidentally, was due to become a father this past June. — This year I hope to improve this column with new blood. We will be having guest editors from other parts of the country. Although they have not been asked yet, I am sure Dick Jorgenson will agree to write news from Chicago and King Cayce, from Cleveland. We will try to cover additional cities as we go along. If you are interested in writing from your area let me hear from you. — May you all have a Merry Christmas and a Happy New Year. — James S. Mulholland, Jr., *General Secretary,* Reinhold Publishing Corporation, 330 West 42d Street, New York, N.Y. *Assistant Secretaries:* Roderick L. Harris, 2873 South Buchanan Street, Fairlington, Arlington, Va.; James B. Angell, M.I.T. Graduate House, Cambridge 39, Mass.

• 1945 (6–45) •

While walking to lunch one day last June, I happened to come face to face with Clint Springer. Clint had given up the contracting business and had decided to associate with Factory Mutual's engineering division. He was at the Boston office going through the training paces before being assigned to a district. He looked hale and hearty and seemed to be none the worse for his bachelorhood. He volunteered the following information concerning our 6–45 brethren. Pete and Lou Hickey, who were married in May, 1947, are living at the Hancock Village in

Brookline and have a year-and-a-half-old daughter, Lisa. Pete is with John R. Evans Company in Boston, dealing in leather. Next door to them lives Ted Hellmuth's brother. Jerry and Mrs. Patterson and J. A., Jr., live in Binghamton, N.Y., where Jerry does development work with the Binghamton Iron and Steel Company. Jerry is reportedly eager in the Naval Reserve Unit there. He has also passed the first two parts of the New York professional engineers examination and now needs only to accumulate the required amount of practice. Chick Street has transferred from Factory Mutual's engineering division to an associated company, Manufacturer's Mutual Fire Insurance Company, and is now an underwriter. Chick has been "cleaning up" this summer racing on the *Carleen II* as captain of the Narragansett Bay Star Fleet. Julian Busby'47 is married and getting his master's degree in petroleum engineering at Oklahoma A. and M. He was working for Alcoa. Tom Stevenson'44 is at the new aluminum reduction plant in Victoria, Texas. G. B. Hetrick, Jr.,'47 at last report was a sales engineer for the Armstrong Cork Company in the St. Louis district. Clint had also met Stan Brown'47 and his wife in Southington, Conn., where Brownie is an engineer at the New Britain Machine Company.

Approximately 25 persons were present at the Alumni Banquet, and all were in high spirits for a rip-roaring 5th reunion next June. Next year, the Alumni Association will revert to its old procedure of holding the Alumni Banquet on a Monday night; thus, allowing the entire preceding week end to be used for the reuniting and merrymaking of the Class. We are looking forward to a big turnout and a great deal of fun. Those present at the banquet and duly enrolled with your Secretary were: Tom Hewson, Lessells and Associates, Boston; Clint Springer, Factory Mutual, engineering division, Bristol, R.I.; Bill Shuman'47, Nashua Brass Company, Nashua, N.H.; Dick Winkler, Container Corporation of America, Medford, Mass.; Frank Carroll, Dennison Manufacturing Company, Framingham, Mass.; John Mitchell'46, Carrier Mandell Inc., Boston; Dan Vershbow, Modern Die and Machine Company, Boston; Steve Eppner, Leviton Manufacturing Company, Brooklyn, N.Y.; Charles Hart, Raytheon Manufacturing Company, Waltham, Mass.; Donald Whitehead, E. Whitehead, Inc., Worcester, Mass.; James Gurney, Brookline, Mass.; John V. McCarthy, American Smelting and Refining Company, New York, N.Y.; Waite Stephenson, Jr., Westinghouse Electric Elevator Company, New York, N.Y.; Max Ruehrmund, Franklin Baker division, General Foods Corporation, Hoboken, N.J.; Bill McKay, Westinghouse Electric Corporation, Sturtevant division, Hyde Park, Mass.; Warren Miller, Battenfield Grease and Oil Corporation, North Tonawanda, N.J.; Bill Martin, Marblehead, Mass.; Robert Turner, Sperry Gyroscope Company, Great Neck, N.Y.; Bob McKenna, Cornell University, Medical School, New York Hospital, N.Y.; Walt Kovaleski, Bethlehem Steel Company, shipbuilding division, Quincy, Mass.; Tom McNamara, Lessells and Associates, Brookline; Bill Meade, Stone and Webster, Boston; Dave Flood, Andrew Alford, consulting engineers, Boston.

Having heard by way of newspaper clippings, we have more marriages to announce. Marshall Byer and Dorothy Van Vleet of Tyrone, N.Y., were married in June and live in Corning, N.Y. Also married in June were John Werme and Janet Martinson of South Norwalk, Conn. John received B.S. degrees from California Institute of Technology and from Lehigh University. He is now with Brown Instrument Company, Division of Minneapolis, and is an electronics engineer. J. Gayne Rescher, who was with the Class during the freshman year, was married to Ottilie Kruger, daughter of Mr. and Mrs. Otto Kruger. August brought the marriage of Dan Vershbow and Ruth Fine of Boston, and the engagement of Russ Bricknell to Jeannette Mostrom of Brockton. Russ is an assistant engineer in the central technical division of Bethlehem Steel Company in Quincy. Mary Sullivan and Paul Nesbeda were married in September. Mary and her husband are both on the faculty of the Catholic University of America in Washington, D.C. She received her master's degree there a year ago and is now an instructor in mathematics. — DAVID P. FLOOD, *General Secretary*, 57 Beech Street, Framingham, Mass. THOMAS A. HEWSON, *Assistant Secretary*, Hartford Street, Dover, Mass.

• 1946 (6–46, 9–46) •

It seems that the recent Navy–Air Force bickerings have made impressions even on former V-12 men of M.I.T., since I see that Leroy Harrington, XIII, ships and such, you know, has taken to the hills. To be specific, he has gone to Lookout Mountain in Tennessee where he has a station on the Red Riding Hood Trail. Have you found the wolf yet, Leroy? Thomas Brockenbrough, I, has said farewell to California and is now at 500 Draper Road, Blacksburg, Va. Paul Gill, XVI, has been a commander at the Naval Academy since the last of September. Congratulations on the promotion Paul, sincere though belated. Dave Herwitz, XV, was admitted to the Massachusetts Bar on September 27 after passing the examinations held in July. Dave, you may recall, was a magna cum laude at Harvard last June as well as an honor student at Technology and a squash player of Graduate House fame.

The headline news for the Class in this issue is that planning for our 5-year reunion in 1951 is already under way. The Alumni Association's very helpful "Class Reunion Manual" has been sent to various classmates who have expressed interest in the reunion planning and ideas are already coming in to the president which will make our first reunion a memorable event. The big news in the next issue concerns our classmates who graduated in September of '46. Are they Technology orphans? Does no one want them? Don't miss the next installment for the absorbing answer!

The cheeriest of season's greetings are extended to all Technology men and ladies from our President, Dave Black, Jr., our Secretary, Harry Augenblick, Jr., and myself. — HARRY A. AUGENBLICK, JR., *General Secretary*, 67 Munn Avenue, East Orange, N.J. JAMES W. CHURCH, *Assistant Secretary*, 2227 Avenue G, Council Bluffs, Iowa.

• 1948 •

It was most gratifying to have the questionnaires keep pouring in; as did announcements of both weddings and engagements. We are pleased to pass along word of the following marriages: George Burbank to Gertrude Louise Shuit; Charles McDonnell to Mary Elizabeth Roberts; Charles Adams to Shirley Stanwood; and John Avallone to Jean Marian Spinazola. Engagements include those of Kenneth Drottar to Florence McCarthy; David Brown to Emily Louise Goedecke; William Bommer to Shirlee Collens; Art Teager to Gloria Sahagian; Bob Wofsey to Marcia Ann Gurwitt; and Andrew Mazzotta to Carolyn Heaton. Congratulations and best wishes to you all.

A questionnaire received quite early from Moe Rifkin discloses him to be one mighty busy fellow. In addition to his work at the Sperry Gyroscope Company developing an "automatic approach amplifier used in conjunction with Sperry gyropilot for automatic aircraft approaches to air-strips," Moe is going to Columbia evenings, working for an M.S. degree in industrial engineering. Fred Bailey, who is now making his home in Pekin, Ill., is with the Caterpillar Tractor Company and is currently in the middle of a one-year college graduate training course in Deisel engine and tractor assembly, test, and repair, in preparation for work with the research department. Sam Levine is with the Atlantic Refining Company studying X-ray diffraction, and absorption and emission spectroscopy; that is, when he's not busy repairing radios, playing tennis, or raising his family. Linda Maureen is now two and one-half years old.

Bill Hosley is another man who has not lost his lust for knowledge. He is working for a master's degree in Economics at the University of Rochester evenings. His work at Eastman Kodak involves long-range planning on gelatine manufacture, stabilization of employment in connection with seasonal production requirements, and general economic forecasting as applied to film production. With what little time he has left, Bill, still a bachelor, is helping to promote a ski development just south of Rochester and is crewing on a 50-foot lake schooner. Paul Anderson is doing special cost analyses and reports for Ingersoll-Rand in Painted Post, N.Y. Any neighbors of his take note, for Paul is anxious to know of any in his vicinity. Paul spends his odd hours as assistant Post advisor of an Explorer Senior Boy Scout Troop, reading, playing golf, and so on. He reports, too, on the whereabouts of Robert Gurney, a fellow Jamestown, New Yorker, who is married and working as an engineer for the Boeing Airplane Company in Seattle.

Martin Starr is another who hasn't "seen a '48 face"; his stamping ground being the Yale and Towne Manufacturing Company in Stamford, Conn. Martin conducts a one-man pilot plant operation; running all new or modified products

through his own small-scale production set-up. Martin has also been making home movies; not only of scenic Connecticut, but also of Canada, where he spent his summer vacation. Ben Clymer is in the product development department of Owens-Illinois Glass, in Toledo, Ohio. His function is to study mathematically all of the processes involved in the manufacture of cathode ray and TV bulbs, in order to derive formulas for optimum process parameters. Potentially, his work has great value for at present more than half the bulbs made become broken during some process along the line because of such causes as thermal stress, developed as the result of unintelligent heating or cooling. Ben, in his spare time, has been writing a textbook on the "Science of Thought," which is now almost complete. He is also working out some of the differential equations of homeostasis within the human body to be the basis for the design of a simulator of human physiology. Quite an ambitious program, is it not?

Bob Silberman has been drafted into the United States Army. Bob is now on a tour of active duty in the Corps of Engineers in Darmstadt, Germany, but is planning to return to the States next July to a job with the Bulova Watch Company in Providence. Gil Parker'47, who spent most of his career at Technology in the Class of '48, is also vacationing at Darmstadt, under the watchful eye of the First Engineer Combat Battalion. William Messimer is director of labor relations for the Collins Radio Company in Cedar Rapids, Iowa. Painting and decorating his house, fishing for smallmouthed bass and brown trout, and raising his two daughters keep Bill plenty busy. He reports, too, that Mel Salveson'47 is working for his Ph.D. degree in business at the University of Chicago in order to get on in his work of teaching at the University of California at Los Angeles.

Bill Weisz is doing design and development work on subminiature communications equipment, such as the "Handie-Talkie," an adaptation of the famous wartime "Walkie-Talkie." He has also been taking advantage of the athletic facilities in the Chicago area. Don Sharp is in the engineering department of the Standard Oil Company of California. Currently, he is acting as assistant to the project engineer in charge of engineering a new grease plant and of engineering additions to a new refinery at Salt Lake. His work includes estimating, contract negotiations, specification writing, and equipment design. "Hardly any chemical engineering," says Don, a Course X-A man. Mountain hiking in the Sierras, photography, and a church young people's group take up his spare time.

Boni Philip Martinez is employed by the Bethlehem Steel Company as a plant engineer, "solving all types of engineering problems arising from the operation of a steel plant." The big news in Duane Rodger's questionnaire was not his job, although Dewey and Almy keep him plenty busy training to be a sales engineer, but rather his marriage on December 9 to Patricia Dunham. Another classmate in the Cambridge area, reports Duane, is Jack Searle who is at United Carr Fastener "just within diving range of the Technology pool." Dave Miller was actually evoked into sending along a real, live letter in answer to our little quiz. Dave, we learn, is a chemical engineer for the Monsanto Chemical Company in St. Louis; a production supervisor for the manufacture of plasticizer intermediates. His spare time, other than social, is divided among photography, keeping a homemade television set operating, and "speculating."

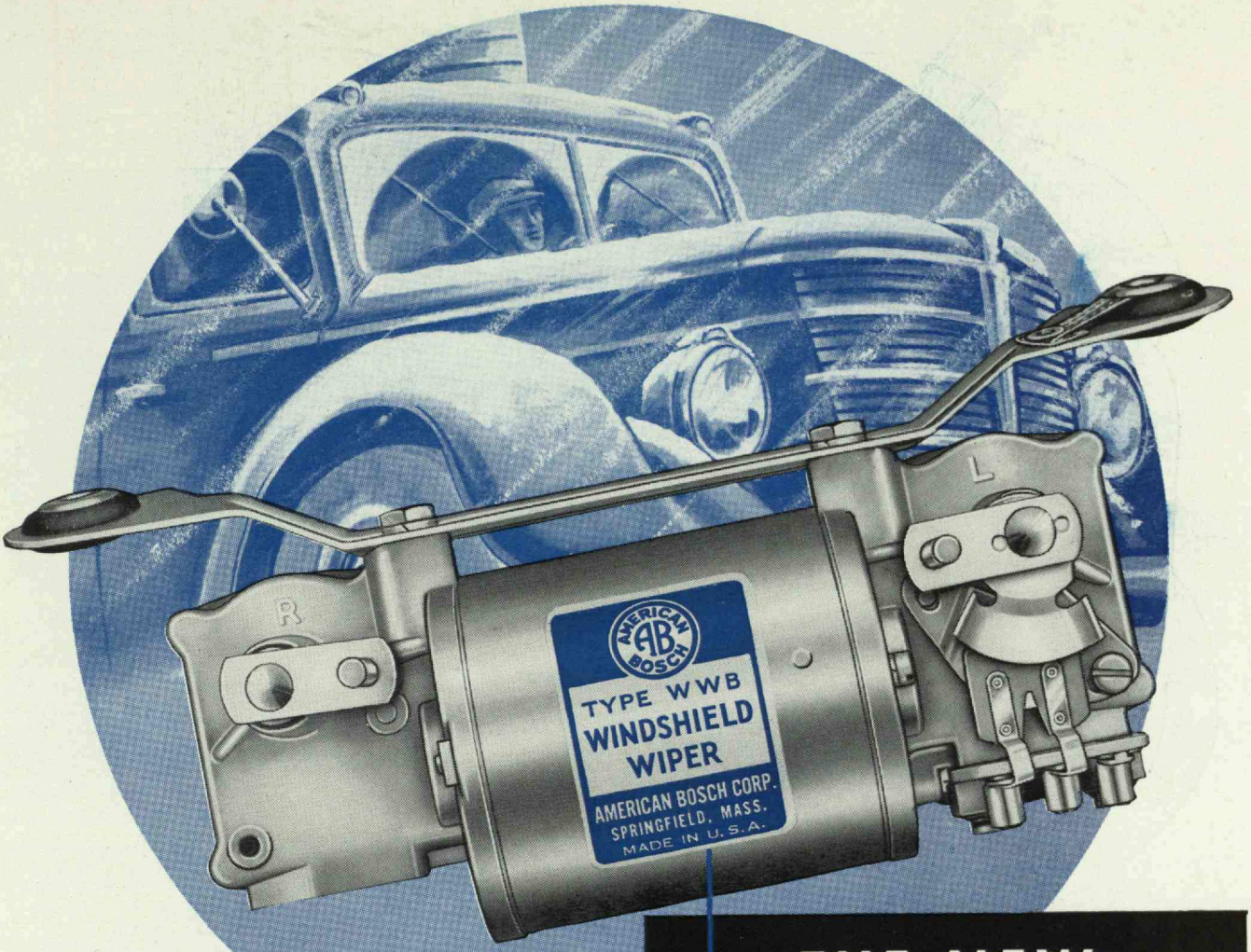
Charles Wiswell has joined with four single college boys to rent a summer residence at Little Sebago Lake and a winter residence in Westbrook, Maine, near the S. D. Warren Company, where Charles is a research chemist in the company's research laboratories developing specialty paper products, mostly adhesives. Stan Jacobs is to be congratulated on the birth of his son, Bruce Alan. Stan is self-employed as a retailer of women's ready-to-wear and between his family and the store hasn't had much spare time of late. Barney Devins returned to Du Pont after graduation and next month will have completed 15 years in their employ. He is a technical service representative in the nylon division, helping Du Pont customers get the most for their money from his product. He is engaged in a project rather than a hobby: namely, house-hunting in the Wilmington area. Any clues?

Sid Tilden is a project engineer, company unspecified, who has been most fortunate in keeping up with his M.I.T. buddies. Charles Morton'47, Bill Helfrich, Lynn Sackett, T. E. Smith, Gardner Bent, 10–44, and Norm Jennings, 10–44 were all met at Charles Butter's housewarming in Levittown, N.Y. James Halkett, who hasn't had any spare time as yet, is starting further graduate work in cellular physiology at Johns Hopkins and his future outlook for much leisure seems dim. Dick Worrell is with the Atlantic Refining Company doing development work in Chemical Engineering, particularly in fluid catalytic cracking. He is taking voice lessons, is assistant scoutmaster of a Boy Scout Troop, and just recently has started concentrating on tennis and horseback riding. Dick, who can be reached at 2045 North 62d Street, Philadelphia, would welcome word from any classmate in his area.

Stan Fingerhood is employed by Walter Dorwin Teague doing system analysis for the production of complex items, with special emphasis on the effect of manufacturing process variations on system performance. Other news from Stan's questionnaire: Arnie Singer, 10–44, came to New York from Houston, Texas, to become engaged to a girl from Larchmont; Ben Brettler has received an A.E.C. fellowship; Ken Parmelee is still at the New York University law school, and working for a law firm; and Pete Spitz is in Standard Oil of New Jersey's executive training program.

Phil Lally, after receiving his master's degree at Technology this fall, has gone with Sperry Gyroscope to do vacuum tube development. Bud Garforth is engaged in general industrial engineering work for the Atlantic Refining Company. Bill Maley and John Kawecki have both gone with the Reliance Electric and Engineering Company; Bill in New York as a sales application engineer and John in Cleveland in the manufacturing department. Richard Smith is now with the Chicago staff of the Rollins Burdick Hunter Company, insurance brokers and adjusters.

There are still a great many men who haven't sent back their questionnaires. If you mistakenly filed yours in the circular file, just grab a pencil and paper and send us a word soon. It's the only way we can keep this inter-class correspondence going. — WILLIAM R. ZIMMERMAN, *General Secretary,* in care of Kurt Salmon Associates, Inc., 3000 Albemarle Street, Washington, D.C. RICHARD H. HARRIS, *Assistant Secretary,* 24 Gifford Drive, Worcester, Mass.



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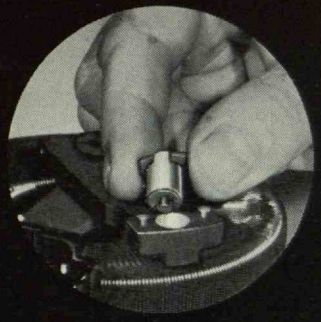

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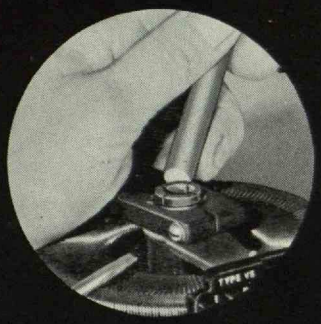

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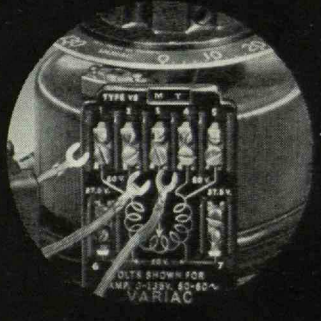

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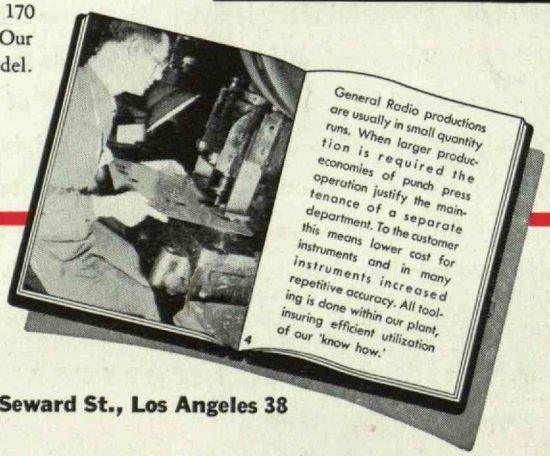

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90 West St., New York 6 920 S. Michigan Ave., Chicago 5 1000 N. Seward St., Los Angeles 38